

**CHANGING BASES OF POWER: THE TRANSITION FROM REGIONAL CLASSIC TO RECENT IN THE
ALTO MAGDALENA (COLOMBIA)**

by

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University of Pittsburgh, 2013

Institutionalized social hierarchy has emerged and developed in many places and at different times, taking a variety of different forms in the process. It has been argued that much of the variability to be observed in developing hierarchical societies is attributable to the basis underlying social power. Four main sources of power are often pointed to: political, ideological, economic and military. These sources are not exclusive of each other and can be relied upon in complementary fashion by elites, although special emphasis has been placed on economic and ideological bases of power. Some scholars have strongly advocated the view that economic bases of power have the greatest potential, although these arguments vary in terms of just how far ideologically-based power can carry emerging elites in the consolidation of large-scale, stable and centralized political systems.

Research in the Alto Magdalena deals with the interplay between ideology and economics in the transition from the hierarchical societies of the Regional Classic period (AD 1-900) to those of the Recent period (AD 900-1530). The focus is on Mesitas, the largest and most aggregated central community in the Alto Magdalena, where a sample of high and low status households of the Recent period was excavated so as to compare the kind and degree of economic differentiation between them to that documented for the Regional Classic period in previous research. Household evidence from this dissertation supports that ideology's role as a

basis of power decreased and materialistic or economic factors played a larger role in Recent period politics. This transition represented considerable continuity in the hierarchical patterns of social organization that had developed many centuries earlier across the Alto Magdalena. The magnitude of the change in bases of power seems, however, was not as strong as it had been thought, as the accumulation of wealth in the hands of elites, while greater than that seen in the Regional Classic, was still minimal when compared to that seen in early complex societies in a number of other regions.

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1.0 INTRODUCTION

Institutionalized social hierarchy has emerged and developed in many places and at different times, taking a variety of different forms in the process. Earle (1997), following Mann (1986), has argued that much of the variability to be observed in developing hierarchical societies is attributable to the basis underlying social power. For Earle, there are three main sources of power: ideological, economic, and military. These sources of power are not exclusive of each other, but can be relied upon in complementary fashion by elites. Nonetheless, in some societies, elites come to rely much more heavily on one source of power than on others, and this has a strong impact on many other aspects of their organization. In Earle's scheme, the particular mix of power strategies pursued by elites plays a major role in giving different social hierarchies their particular characters and in determining the extent to which elites can expand their social power.

1.1 IDEOLOGICAL AND ECONOMIC BASES OF POWER

The contrast between the implications of ideological and economic power, in particular, has long been recognized as an important issue in the study of the development of hierarchical societies. Although the precise way in which these two sources of power relate to each other

has been formulated in a number of different ways by different authors (for example, Service 1971, 1975; Fried 1960, 1967; Earle 1991, 1997, 1998, 2001; Trigger 1983, 1985, 1990, 1993; Gilman 1981, 1991, 1998, 2001; Gilman and Thornes 1985, and Kolb 1994, 1999), power based on economic control of basic resources and the accumulation of wealth has frequently been seen as having greater organizational potential than power based on belief systems. Ideological power is positioned by some authors as more "primitive," and the consistent basis of the initial development of social hierarchy, to be eventually superseded by wealth accumulation and power based on real economic control. Other authors allow for more variety in the basis of power at the beginnings of social hierarchy, but nevertheless see limits to the extent to which such systems can develop. It is only when elites are able to make a transition to firm economic control that strong and stable centralized social systems can emerge.

Scholars who broadly agree that economic bases of power are the most potent do, however, vary in their notions of just how far the development of large-scale, stable, centralized political systems can proceed with social power based primarily in the realm of religion and ideology. Trigger (1983, 1985, 1990, 1993, 2003), for example, accords belief systems more developmental potential than many others do. He sees in Early Dynastic belief systems in the Nile Valley, the central organizing principle of daily life and the central basis of Pharaonic power. The "mound of creation" produced by the annual flood of the Nile "was created at the beginning of each day and every time a pharaoh sat upon his throne. The mound of creation underlay the heart of every temple and inspired the pyramids and obelisks that to outsiders become the symbols of Egyptian civilization" (Trigger 1993:5). Hierarchical social relations depended on "centralized supernatural control" and society was completely

structured around unequal social relations between various human social groups and the gods, personified by the pharaohs. This ideologically based social structure provided for considerable concentration of power in the hands of the pharaohs and their rather highly developed bureaucracy. Monuments like the pyramids of Giza, from Early Dynastic times, have become virtual icons of sociopolitical power in archaeology, testifying to the ability of leaders to mobilize human effort on a vast scale.

Service (1971, 1975) also accords considerable scope to the role of religion and ideology in the development of hierarchical systems of social organization, but he does restrict it to the earlier of his two stages of hierarchical society, that of the "chiefdom." He would see a society like Early Dynastic Egypt as a "state" with a substantial component of wealth accumulation and true economic power taking on at least a vital role alongside that of systems of belief. For Service (1971:136), the initial social hierarchies seen in chiefdoms were uniformly "theocratic," allowing little possibility for the accumulation of wealth since mobilized resources were rapidly expended in special activities such as ceremonies, feasting, and warfare. These ideologically based hierarchies were the essential first step and had the potential to carry development to a substantial sociopolitical scale, but the emergence of the package of characteristics that defined the state in his scheme required elites to transcend such an ideological basis of power and establish real economic control.

Fried (1967, 1968) also sees religion and ideology as the basis of power in the earliest institutionalized social hierarchies, those of "rank societies." He sees somewhat sharper limitations to ideologically-based elite power than Service does, however, in that he positions "stratified society" as a uniform next stage in which elites have transcended the limitations of

ideologically based power by forging control over basic resources like land and water needed by the populations they dominated. Stratified society, though, is seen as still a precursor to the emergence of the bureaucratic administrative structures and legitimized monopolies of force that characterize states. Agricultural intensification, particularly in the form of artificial systems of irrigation, represented for Fried a quintessential opportunity for elites to create and maintain truly stratified social systems. Such subsistence systems made it possible for them to claim permanent exclusive rights over particular territories, to accumulate considerable wealth, and to launch a system of payments via dues, rents, and taxes paid in labor or in kind. These unequal relationships were the foundation of state police power and administration, which grew fairly quickly from the means of enforcing resource control.

Earle (1997; Johnson and Earle 2000) is even more pessimistic about the extent to which elites can expand their power if it remains based primarily on religion and ideology. For him only fairly small-scale chiefdoms can be built on ideologically based social power. For even "complex chiefdoms" to emerge, social power must have quite a substantial basis in control of basic resources. In contrast to Service's and Fried's essentially unilineal evolutionary schemes, Earle presents a vision in which the three bases of social power he emphasizes are seen as producing three different evolutionary trajectories. If the basis of social power is largely in the realm of ideology, what emerges are "prestige-goods chiefdoms" revolving around the symbolic value of luxury goods often exchanged across great distances through far-flung networks of social exchange (exemplified for Earle by the Bronze Age societies of Thy, Denmark). "Staple-finance chiefdoms" (exemplified by the societies of Hawai'i at the time of first European contact) developed where an economic basis for social power was established early on in the

control of material resources, as in intensive agricultural systems involving the alienation of land from communal property to private (Earle 1997:79–82; Kirch 1984:258, 2000:246, 300). The third trajectory for Earle is "hill-fort chiefdoms" (as in the Mantaro Valley of Peru in pre-Inca times), where the central basis of power is in military affairs. Earle (1997:12–13, 206) is clear that he sees the three sources of power as "intertwined and interdependent." Economic power finally, though, is the most effective basis of social hierarchy since both ideology and military affairs are more problematic for maintaining control and since the resource easily mobilized from economic control and wealth accumulation can be used to co-opt both ritual and military power. ("Although alternative sources of power certainly existed, real economic power was basic because only it could be controlled across generations to give the stability on which a polity must be based" [Earle 1991:98]). Elites wielding control over basic resources, then, are positioned to go far, while those whose power remains centered on belief systems are unlikely to establish great power or to extend it over large populations. Ideology might be highly visible and closely connected to political authority in complex chiefdoms and states, but in Earle's view such systems could only develop if underwritten by the accumulation of wealth in the hands of elites who wielded firm control over basic (usually agricultural) resources and a system of staple finance. Only this combination allowed the eventual development of chiefdoms in Hawai'i, and its absence doomed the prestige-goods' chiefdoms of Thy and the hill-fort chiefdoms of the Mantaro Valley ultimately to disintegration.

Finally, Gilman (1981, 1991, 1998, 2001) represents a still more conservative view of the developmental possibilities for social hierarchies based on religion and ideology. For him, a material basis for social power is essential for the integration of even smaller-scale societies at

earlier stages of development. The Bronze Age societies of the Millaran-Argaric tradition in the arid coastal lowlands of southeastern Spain represent social formations of rather modest scale and elaboration of social hierarchy. Even this relatively modest development is nonetheless seen by Gilman as possible only through agricultural intensification in the form of capital investment in irrigation systems and the possibility this creates for binding common farmers to elites by means of the extraction of rents (Gilman 1991:156–157, 165, 1998:226, 2001:74). Warfare was also involved in these chiefdoms along with the production and exchange of metal items used for wealth display.

In separating ideological and economic bases of power, none of these authors suggests that any society makes some sort of either-or choice between the two, which can combine in a variety of mutually supportive ways to support social hierarchy. What they all recognize, however, is that the extent to which either ideology or economic control is developed as a basis for power is variable, separately and independently. Ideology may be a very important component and economic control only a minor one, or vice versa, and the relative importance of the two may shift through time in a single trajectory. This is not a unilinear view of social change since the variety of ways in which these two bases of power may combine, creates a multiplicity of paths that complex society development may follow. The same question can be asked, however, of any complex society: Just what is the relative weight carried by ideology and by economic control in sustaining social hierarchy? If that question can be answered for a number of societies, then we will be in better position to provide an empirical assessment of whether and to what extent the potential of economic control for sustaining social power outstrips that of ideology.

1.2 SOCIAL HIERARCHY IN THE ALTO MAGDALENA DURING THE FORMATIVE AND REGIONAL CLASSIC PERIODS

The Alto Magdalena of southwestern Colombia (Figures 1.1, 1.2 and 1.3) is another region where, as in the regions focused on by the authors discussed above, societies with strongly hierarchical social organization emerged (Drennan 1993, 1995, 2000, 2006; González 2007; Sánchez 2000, 2005, 2007). Sedentary occupation, based largely on agricultural subsistence began around 1000 BC (Figure 1.4) in a well-watered zone of steep slopes and fertile soils between about 1400 and 2100 m above sea level. Residence patterns consisted of dispersed farmsteads, but even in this earliest occupation of the Formative 1 period (1000–600 BC) the dispersed farmsteads were not distributed evenly across the landscape, but tended to concentrate into several distinct clusters. Initial fairly low populations grew steadily through Formative 2 (600–300 BC) and Formative 3 (300 BC–AD 1), reaching densities of 20 persons per km² or more. The pace of demographic growth then increased, bringing population densities above 30 persons per km² during the Regional Classic period (AD 1–900). The locations of regional-scale settlement clusters shifted around somewhat, but they persisted and the degree of clustering increased. By Regional Classic times, the clusters tended to be around 10 km across and include several thousand inhabitants each. About six such clusters are documented in areas that have been surveyed systematically which suggests that there might have been as many as 15 to 20 of them altogether.

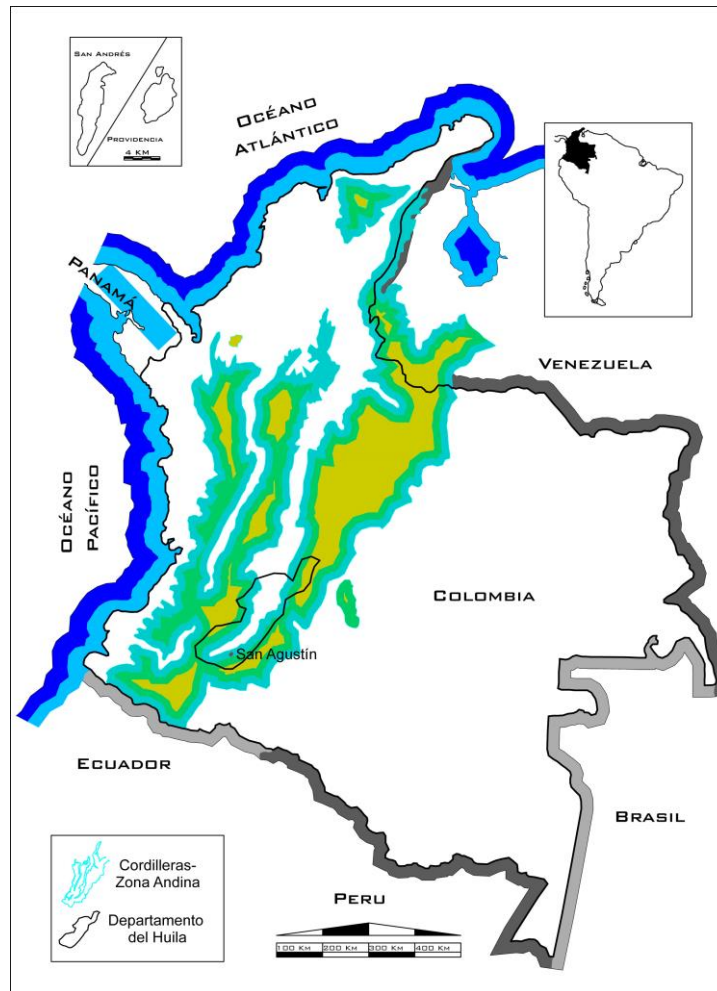


Figure 1.1. Map of Colombia and the location of San Agustín (Huila department).

Each Regional Classic settlement cluster appears to have had a complex of burial mounds and large statues at its center. The circular earthen mounds (up to 30 m in diameter and 4 m in height) occurred singly or in groups. Each contained a deep rectangular burial chamber often walled with stone and roofed by slabs, sometimes containing a stone sarcophagus (Duque and Cubillos 1993; Llanos and Ordóñez 1998). Other graves, less impressive than the central burial chamber, were also often present within the earthen mounds. Statues were often posed in front of the burial chambers, probably covered by the earthen mounds, and other statues embellished large open level areas around the mounds.

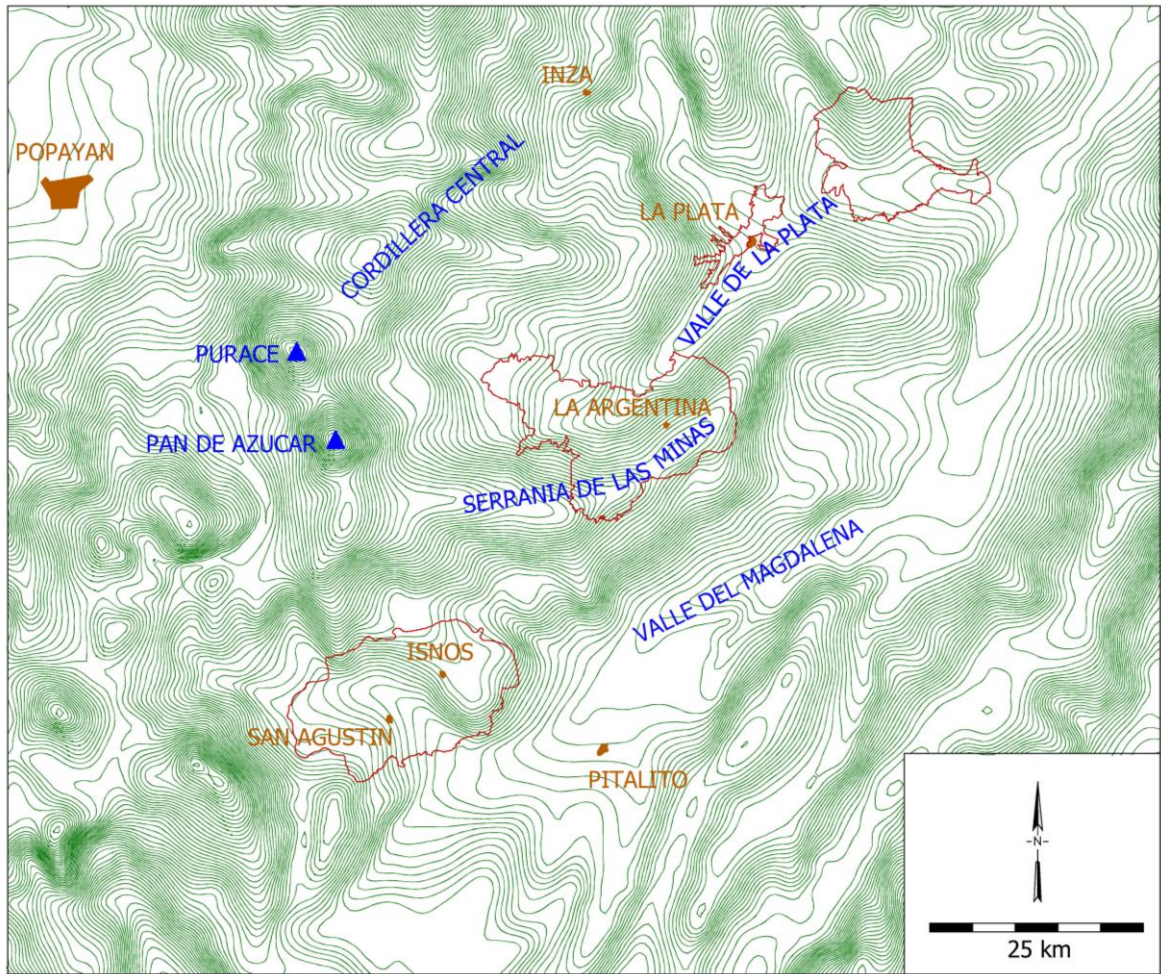


Figure 1.2. Map of the Alto Magdalena and the location of several regional survey zones (Courtesy of Robert D. Drennan).

Within the mound, a principal statue was often accompanied by two other smaller figures placed on the right and left sides. Fundamentally human figures are most commonly represented, but they frequently have distinctly non-human features, such as long fangs (Llanos 1995; Reichel-Dolmatoff 1972, 1986). Interpretations of the iconography often involve shamanistic beliefs in human-animal transformations. Stone slabs in some cases were decorated with incisions or geometric figures painted in yellow, white, black and red (Duque and Cubillos 1993; Velandia 1994). Clearly these burials indicate the presence of strongly

developed social hierarchy of some sort—not because of the organizational requirements of creating the monuments, but because the few individuals who received such elaborate treatment were dramatically set off from the rest of the population in death at least. They were clearly at the top of some kind of social ladder.

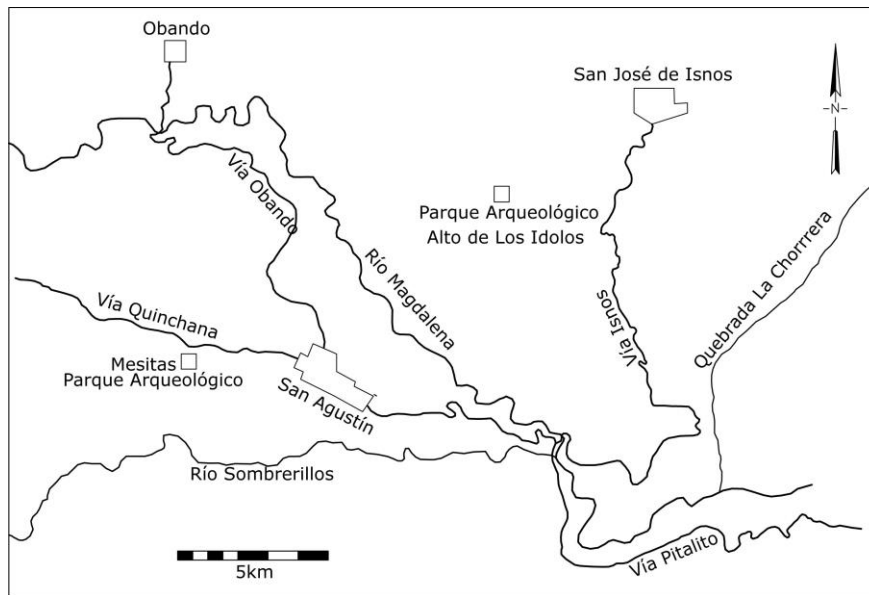


Figure 1.3. Map of San Agustín-Isnos region (southwestern Huila, after Sánchez 2000).

| |
|---|
| Recent (Barranquilla Buff Barranquilla Decorated) AD 900-1530 |
| Regional Classic (Guacas Reddish Brown) AD 1-900 |
| Formative 3 (Lourdes Red Slipped) 300 BC – AD 1 |
| Formative 2 (Planaditas Burnished Red) 600 -300 BC |
| Formative 1 (Tachuelo Burnished) 1000-600 BC |

Figure 1.4. Alto Magdalena chronology and ceramic types (Drennan 2006: 21).

In sharp contrast to well-known burial practices from other regions in Colombia, even the largest and most impressive mounds (much more elaborate in terms of architecture and

sculpture than any other burials in Colombia) did not include much in the way of artifacts associated with the individuals buried there (Duque and Cubillos 1979, 1983, 1988, 1993). Either wealth accumulation in utilitarian terms or the manipulation of a prestige goods economy might well be argued from burial offerings recovered in a number of other regions in Colombia, but neither is indicated by the mortuary evidence from the Regional Classic in the Alto Magdalena. Both utilitarian and prestige items are conspicuous principally by their absence from the sculpturally and architecturally elaborate Regional Classic tombs. Drennan (1995) has suggested that this might represent a social hierarchy based much more on beliefs in the supernatural power of certain individuals than on the control of resources and the accumulation of wealth. These people may have been the leaders of small polities represented by the settlement concentrations.

One of the larger of these apparent Regional Classic chiefly polities had at its center the largest and most impressive of the complexes of burial mounds and statues, now the Parque Arqueológico San Agustín, located near the modern town of San Agustín (Figure 1.3). The residential zone surrounding it seems to comprise the central community of the small chiefly polity, and this zone has been especially thoroughly studied. Regional-scale systematic surface survey was followed up with the excavation of 1 by 1 m stratigraphic tests at intervals of about 25 m within occupation zones, and this was followed by the excavation of a much denser grid of small shovel tests (González 2007). This central community of Mesitas covered an area of some 2.75 km², within which distinct patterns of artifact clustering revealed the locations of 81 household clusters. The earliest of these were the 6 that were occupied in Formative 1. The

number grew to 31 in Formative 2 and to 38 in Formative 3. By the Regional Classic period, there were 75.

Something over 29 house structures of all periods have been excavated at different sites across the Alto Magdalena. These residences were circular to oval and none of the Formative or Regional Classic ones exceeded 6 m in diameter (Blick 1993; Drennan 2000; Jaramillo 1996; Llanos and Durán 1983; Quattrin 2001; Romano 1998; Sánchez 1991). Detailed studies of artifacts and ecofacts associated with different households reveal only the slightest indications of differences in standards of living from one household to the next. Proportions of more decorated and finer ceramics differ slightly; lithic raw materials of better quality are not especially concentrated anywhere; and fancy or ornamental items occur rarely in scattered locations. Much the same can be said of the evidence for specialized productive activities. There is only very slight indication of craft specialization in household remains, and raw material sourcing suggests a number of locales for ceramic production with overlapping areas of distribution (Taft 1993). This lack of evidence for economic differences (of either production or consumption) from one household to another is consistent with the suggestion that social hierarchy up through the Regional Classic period was based more on beliefs than on wealth.

1.3 CHANGES DURING THE RECENT PERIOD

The Recent period (AD 900–1530) is not nearly so well known. It appears that the practice of burying important people in earthen mounds accompanied by statues ceased. No new ones are dated to this time (Drennan 1995, 2006; Duque and Cubillos 1981, 1988). Before

much direct evidence of occupation was known, this was taken to imply social collapse and regional depopulation. Regional settlement study reveals, however, that population continued to grow, perhaps reaching densities as high as 100 persons per km² in some parts of the Alto Magdalena. The tendency of settlement to form concentrations that was observed in the Regional Classic persists, and the intensity of the clustering is even stronger than it had been before. This suggests the persistence of small regional polities of about the same spatial extent as before, although the largest now probably exceeded 10,000 inhabitants. One excavated Recent period circular structure (in the Mesitas community) is the largest known for any period, with a diameter of about 8.5 m. It has been suggested that this might have been a communal structure of some kind or an elite residence (Duque and Cubillos 1981). Raw material sourcing suggests a single major network of ceramic distribution had replaced the multiple ones that existed previously in the Valle de la Plata (Taft 1993). Subsistence systems of the Recent period show intensified production of crops that had been cultivated before (including palms, maize, and potatoes) as well as reliance on a wider diversity of crops than before, with the addition of the starchy root achira and peanuts (Romano and Morcote 2001; Sánchez 2000:79, 2005:27). The pattern of dispersed farmstead living continued, and farmsteads spread into a number of less productive agricultural zones that had not been so intensively exploited before. These included areas of poorly drained soils on steep slopes that were made more stable and productive by digging drainage ditches running down the slopes (Sánchez 2000, 2005, 2007).

The evidence for the Recent period, taken together, suggests a change in the basis of sociopolitical centralization. The regional polities of modest scale clearly did not disintegrate. Indeed, to judge from regional population distribution, the centralizing forces that held them

together were even stronger than before, and their populations grew—quite substantially in some cases. The ritual spaces around the tombs of individuals who had evidently been quite important during their Regional Classic period lives might have continued to be used, but apparently new tomb mounds were not constructed, and new statues were not carved. It has been proposed by Drennan (1995; 2000:122; 2006:227–229) that Recent period elites may have based their power more on economic control and wealth accumulation than earlier elites had done. Resources were thus no longer directed toward enlarging ritual spaces and commemorating dead leaders and their supernatural connections. Both agricultural intensification and specialized craft production are possible economic arenas in which Recent period elites may have been active in mobilizing resources, along the lines of models long suggested for early complex societies. The Alto Magdalena thus represents a sequence in which the initial emergence and development of hierarchical social organization was based primarily on belief systems, like those of a number of other regions the authors discussed above have dealt with, and as some early theorists suggested would uniformly be the case. The centralized regional polities that emerged appear to have reached a demographic scale and degree of hierarchical differentiation that the most conservative opinions argue was beyond the capacity of social power based on religion and ideology to integrate. They seem not to have disintegrated, however, although there is reason to believe that the basis of power shifted in the Recent period to rely more on the material than the spiritual realm. The evidence currently available seems more consistent with a shift from ritual to material power than the progressive co-option of religious belief by economic control seen by Earle as the most successful avenue for aspiring elites. And if such a shift did indeed occur, it came at a much smaller demographic

scale and lesser degree of hierarchical differentiation than imagined by Service or Fried or described for the Nile Valley by Trigger. If such a shift did occur in the Alto Magdalena between the Regional Classic and the Recent, it does not seem to be associated with any great strengthening of elite power; only modest growth in demographic scale and centralization are indicated.

The evidence available to date, however, does not really show convincingly whether Recent period elites accumulated wealth to a greater degree than Regional Classic period elites had. And it provides only quite indirect evidence of greater specialization of craft production than in Regional Classic times. The aim of the proposed research is to document the nature and degree of economic differentiation during the Recent period in the Alto Magdalena. It will pursue Recent period economic differentiation at the household level in the spheres of both production (more specialization in household productive activities) and consumption (greater differences between households in standards of living).

The evidence of war in the Alto Magdalena from the Classic period to the Recent period is still somewhat confusing. Empirical evidence about war and military affairs in the Alto Magdalena in these two periods is scarce and ambiguous. Findings of a few projectile points, and some statue depictions of what can be weapons for combat, are the only possible manifestations of weaponry. So far, analysis of regional settlement patterns in the Alto Magdalena has not shown in either of these two periods any settlement aggregation for the protection of the population in times of conflict. According to these characteristics, then, we lack of clear initial evidence about warfare, making difficult the study of the relationship

between militaristic sources of power and the development of social hierarchies in the Alto Magdalena from the Classic period to the Recent period.

1.4 THE STUDY OF SOCIAL COMPLEXITY AT THE HOUSEHOLD LEVEL

Archaeological assessments of economic differentiation at the household level in terms of both production and consumption have commonly relied upon architecture, features, and artifact assemblages (Flannery and Winter 1976:34–35; Hirth 1993:122–126; Leventhal and Baxter 1988:53–55; Santley and Hirth 1993; Santley 1989, 1993:79–82; Smith 1987, 1993:193–197; Whalen 1988; Winter 1976:25–27). A fair amount of this kind of information is already available for the Formative and Regional Classic periods in the Alto Magdalena (Blick 1993; González 2007; Jaramillo 1996; Quattrin 2001). This research thus did not seek to add to our knowledge of the Formative or Regional Classic. Instead, data was gathered to complement this knowledge with similar information for the lesser-known Recent period so that it could be compared with its better-known predecessors in regard to the nature and extent of the differences that separate households at the top of the social hierarchy from those at the bottom. The categories of information discussed below were central to the pursuit of this objective.

A fundamental expression of economic differentiation between elite households and low-ranking ones might be the size and elaboration of residential structures (Ashmore and Wilk 1988:11; Clark and Blake 1994; Cliff 1988; Dillon 1985; Santley 1993:74, 80; Whalen 1988). As noted above, while there is some variation in the sizes of residential structures during the

Formative and Regional Classic, all excavated examples are about 6 m in diameter or less. They thus all appear to be fairly small in terms of global average house sizes for nuclear families. This overall small size and limited range of sizes suggests very little difference in standards of living in this respect between high-ranking and low-ranking Formative or Regional Classic households. The single excavated larger Recent period structure (with a diameter of about 8.5 m, also noted above) opens at least the possibility of elite households living in substantially larger residences than lower ranking households during the Recent. The construction of larger and more elaborate residences implies control over more labor and the ability to invest it toward personal ends. This large Recent period structure was not, however, associated with some of the other kinds of evidence discussed below that is suggestive of wealth accumulation, and might possibly have been of communal or ceremonial character. This research wanted to determine whether larger or architecturally more elaborate residential structures are associated with other forms of evidence (below) for differences between households in standards of living in the Recent period.

Differences in the proportion of sherds from ceramic vessels used for serving (as opposed to those used for other functions) has also often been taken as an indicator of wealth differences between households within a community, since wealthy elites would have a greater ability to provide food and drink to guests, sometimes in large quantity (Boada 2007; Bray 2003:9–10; Brumfiel 1987; Clark and Blake 1994; Drennan 1976:77; Hirth 1993:137–138; Lau 2002:280; Smith 1987; Whalen 1981:59, 1988:258). González (2007:115) found that Regional Classic period households in the Mesitas community did not differ much at all in this regard, and that the overall proportion of serving vessels in the Regional Classic was lower than it had

been earlier, suggesting that elaborate food-serving was not an especially important activity then. This research assessed the magnitude of such differences between Recent period household assemblages so as to see whether this aspect of economic differentiation between households widened then.

Wealthier households have also sometimes been thought likely to have more and larger facilities for storage of various kinds of goods than less wealthy households (Bray 2003:10; Frink 2007; McKee 1999:39; Mills 1989:137–141, 1999:103–105; Sanders et al. 1979:307–311; Santley 1993:70–73; Sheets et al. 2008; Smith 1987; Whalen 1981:62; Wesson 1999:147). Large jars and storage structures or pits are the kinds of storage facilities that might be found in the archaeological record for the Alto Magdalena. Information about Regional Classic period storage structures or pits is very scanty, and the proportion of jars changes very little from one household assemblage to the next (González 2007:115). This research evaluated differences between Recent period households with regard to the numbers and sizes of jars and other storage facilities.

Differing proportions of particularly well made or elaborate ceramics have also often been taken as an indicator of economic differences between households, since such ceramics are likely to require more labor for their manufacture (Arnold 1988:155; Boada 2007; Cliff 1988:217; Drennan 1976:137; Feinman, Upham and Lightfoot 1981; Feinman, Kowalewski and Blanton 1984; Hagstrum 1985, 1988; Rice 1984; Sinopoli 1991:159; Stark 1999; Whalen 1981:62–63, 118–123). During Regional Classic times elaboration on ceramics mainly consisted of appliqués, elaborate rims and impressions, slipped surfaces, incising, and tripod supports (González 2007:115). Altogether, however, these elaborations occurred only rarely (on less

than 1% of the total assemblage of 21,528 sherds from the Mesitas community, making the Regional Classic the period with the lowest proportion of elaborate ceramics). The evidence for elaborate ceramics as markers of wealthier households within the Mesitas community for the Regional Classic period is ambiguous. This research measured the nature and strength of differences between household assemblages to see whether these differences became stronger or formed any clearer pattern during the Recent period.

Craft specialization is a potential source of wealth differences between households (Brumfiel and Earle 1987; Clark and Parry 1990; Costin 1991; Costin and Hagstrun 1995; Hoag 2003:54–55; Pool 2003a; Pool 2003b:92–95; Santley, Arnold and Pool 1989; Santley and Kneebone 1993; Smith 2004; Vaughn 2006; Whalen 1981:59–61, 85–87, 103–104; Welch 1996). Taft (1993) has suggested on the basis of raw material sourcing that the scale of specialized pottery production increased substantially between the Regional Classic and Recent periods in the Valle de la Plata. Kiln wasters were especially concentrated in two centrally located households in the Mesitas Community (González 2007:87), although it could not be determined to which period these kiln wasters pertained. Exceptionally hard, fine-grained rock, such as chert (which is relatively scarce in the Alto Magdalena) or obsidian (which must be brought from outside the region) is highly desirable for flaked stone implements. Unusually high proportions of such materials in some households might be an indication of greater wealth or of craft specialization for which high-quality flaked stone tools were important (Arnold 1984, 1990; Brumfiel and Earle 1987:2; Costin 1991; Evans 1978; Hester and Shafer 1992; Hirth 1996:221; Knight 2003; Jaramillo 1996:125–126; Moholy-Nagy 1976; Shafer and Hester 1991). González (2007:87–91) found high proportions of obsidian in four neighboring centrally located

households in the Mesitas community, but this pattern could not be securely assigned to a particular period. This research provided lithic and other artifacts assemblages from stratigraphic contexts so as to assess the strength of the evidence for craft specialization during the Recent period.

The presence of exotic or ornamental artifacts has also often been considered an indicator of wealthy elites (Boada 2007; Brumfiel and Earle 1987; Cliff 1988:213; Gnecco 1996; Langebaek 1991; Martin 2010; Shennan 1982; Steponaitis 1991). Generally speaking, such artifacts have been more abundant at households in the central part of the Mesitas community (González 2007:101–103), although, again, they are difficult to date securely when not recovered from stratigraphic context. This research recovered samples from stratigraphic contexts of the Recent period so that differences between households in regard to the presence of exotic and ornamental artifacts can be attributed to this period.

Summing up, the very significant variables to this research for assessing differences in production, distribution, and consumption of certain items among households at the top of the social hierarchy in regard to those at the bottom of the social hierarchy in the Recent period were the house's size (this is the amount of built area) and their location in regard to the general community's layout (this is their accommodation into a residential pattern), the differences in spatial arrangements including facilities for storage and activity areas, the differences in the proportions of well elaborated ceramic's vessels, the differences in the proportions of exotic or ornamental artifacts, and finally the differences in types of ceramic's forms in general by the hand of lithic artifacts (this is the differences in the spatial distribution of activities and their intensity). All these are closely related to social and economic activities

which determined the scale and frequency of social and economic interactions among discrete social groups. The excavations of Recent period households at the Mesitas community central place were undertaken in order to test this and to provide information which permitted to do comparisons with previous periods.

1.5 POSSIBLE OUTCOMES

The contributions of this research can perhaps be shown most clearly by imagining several different possible empirical outcomes. First, it might turn out that the household evidence collected shows a substantially wider gap in standards of living between elites and commoners than the very slight evidence of such differentiation from the Regional Classic. This would comprise evidence in favor of Drennan's suggestion of the continuation of hierarchical patterns of social organization at the core of the centralized regional polities of the Recent period as well as his suggestion that ideology's role as a basis for power diminished while more material concerns took on greater importance. It would also add a case to the growing number available for comparative study of the interplay of these two bases of social power—a trajectory in which hierarchy and centralized political organization developed to a degree beyond that which Gilman, for example, might think possible on a largely ideological base. It would, at the same time represent a trajectory in which a shift toward greater reliance on economic control occurred at an earlier point than Fried's or Service's unilineal schemes would suggest (since Recent period societies clearly lacked the major hallmarks of state-level organization by anyone's reckoning), and in a far smaller and simpler social formation than

Early Dynastic Egypt by Trigger's account. It would furthermore seem to exemplify, not the fruitful provision of a stronger material base to a previously largely ideological system (as Earle has described for Hawai'i) but a smoother shift from ideology to economic control without the greater disruption of living patterns seen, for example, in Earle's accounts of the transition from the Bronze Age to the Iron Age in Wessex.

If the household evidence that was collected does show substantial differences in standard of living in the Recent period, this might be combined with similar increases in differentiation of productive activities between households. This evidence would at least be consistent with the idea of elite involvement in craft production as a possible part of their mobilization of resources. The absence of evidence of increased differentiation in productive activities between households would, on the other hand, suggest that the basis of a wider economic gap between elites and non-elites did not lie in elite involvement in craft production. While by no means proving it, such an outcome would leave elite involvement in agricultural intensification as a more likely possibility.

In contrast, it might turn out that there is no more evidence of economic differentiation between households in the Recent period than there had been in Regional Classic times. This would raise a number of interesting possibilities. On the one hand, it might indicate that non-material bases of social power have more centralizing potential than authors like Gilman or Earle have allowed for, and would be more consistent with the classic views of Fried or Service on the subject. It would also raise the very interesting possibility that the larger-scale and more strongly centralized polities of the Recent period were not as hierarchically structured as the Regional Classic ones had been. This would surely please advocates of heterarchy and self-

organizing systems (Brumfiel 1995; Crumley 1979:144, 1995; Ehrenreich, Crumley and Levy 1995; Mehrer 2000:46; Rautman 1998; Roosevelt 1999; White 1995). If the empirical evidence actually suggested such a turn in the Alto Magdalena trajectory, though, it would be an unusual sequence even from this perspective, since most examples of surprisingly large and complex social formations with minimally hierarchical structures are described as developing out of various forms of modest differentiation in small-scale societies such as those discussed by Spielmann (2002) rather than following on the heels of strongly hierarchical and ideologically based structures.

The principal theoretical contribution of this dissertation is thus to enable us to position the transition from the Regional Classic period to the Recent period in the Alto Magdalena in comparative perspective alongside other trajectories that have played important roles in the development of models of the social dynamics of early complex societies.

1.6 ORDER OF THE DISSERTATION

This dissertation comprises five chapters. Chapter 1 presents the theoretical framework and research questions that driven this investigation. The methodology's description is part of the Chapter 2. It describes the stages of different investigations as part of an extensive research program developed at various scales to get the required data. It also describes the analytical procedures used in this project to account for the interaction between basic social units and the establishment of social hierarchies. Chapter 3 includes the spatial analysis of each one of the ten household clusters from the Recent period excavated in the central community at Mesitas.

Chapter 4 includes the analysis of ceramic and lithic assemblages through a comparative perspective between the ten excavated households to assess differences and similarities in wealth and status behavior as well as its implications in the economics of craft production and specialization during the Recent period. Finally, the evolution of social differentiation in the Alto Magdalena region, using household clusters data from previous periods and the implications of this research, regarding the institutionalization of social hierarchies and the changing bases of power in a more general sense are described in Chapter 5.

2.0 METHODOLOGY

This research was focused on the Mesitas archaeological community embracing what are today the Archaeological Park of San Agustín and neighboring areas. It covers an area of about 2.75 km² (González 2007). As noted above, it is the largest complex of monumental burials and sculpture from the Regional Classic period. It also comprises the largest and densest regional-scale concentration of Recent period occupation known for the Alto Magdalena (Drennan, personal communication). It is thus a likely community in which to find the strongest expression of social hierarchy for either period, and the failure to find evidence of strong economic differentiation between its households, as discussed in the preceding chapter, is an important component of the evidence favoring the conclusion that wealth accumulation and resource control were not much developed as axes of social differentiation in the Formative or Regional Classic periods. This central community comprised about 76 households during the Regional Classic period, identified as clusters of high density artifactual remains in an intensive program of shovel probes at 5 m intervals (González 2007). Treating Recent period ceramics from this same program of shovel probes in the same way reveals 98 such clusters of high artifact densities (>4 sherds/m² in the shovel probe data). These clusters formed the starting point for the proposed research, each one being taken initially to represent a potential household area of the Recent period (Figure 2.1). This dissertation provides more detailed

information of the kind discussed above for a sample of six initial areas which were expanded to ten of these 98 Recent period households.

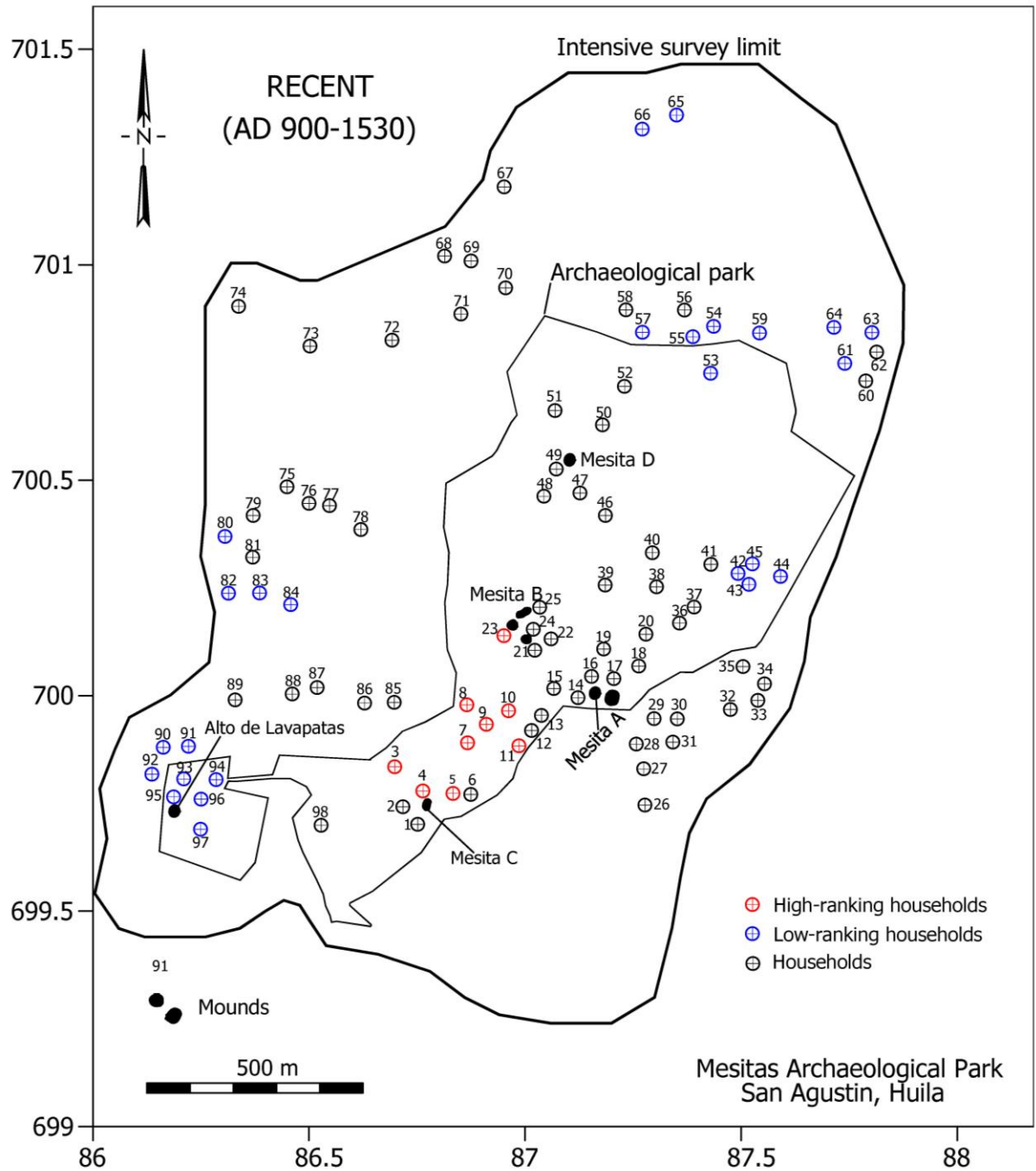


Figure 2.1. Recent period households at Mesitas community.

Promising zones for high ranking households of the Recent period were identified on the basis of proportions of decorated Recent period ceramics. This information was not available for Recent period ceramics recovered from the intensive program of shovel probes, but was available for Recent period ceramics recovered from a program of 1 by 1 m stratigraphic tests at 25 m intervals (Drennan, personal communication). Figure 2.1 shows in red the 9 Recent period households whose assemblages have especially high proportions of decorated ceramics and in blue the 26 Recent period households whose assemblages have especially low proportions of decorated ceramics. These were the households that gave promising initial indications of being of high and low rank, respectively. Additional characteristics of these household locations, such as very low proportions of materials from earlier than the Recent period which occurred in the context of stratigraphic deposits over 30 cm deep, made it possible to focus even more narrowly on some of those that presented the most promising characteristics for the excavations.

The first step in the proposed research was to carry out a magnetometer survey of these selected household locations in order to assess the nature, distribution, and level of preservation of remains of structures and features in each area. The magnetometer survey is part of an ongoing remote sensing program in the Mesitas community carried out by the Instituto Colombiano de Antropología e Historia (ICANH) under the direction of Víctor González. It is already providing information about Recent period households of interest for this study. This research, then, proposed to excavate at least 40 m² in each of these ten household locations, including ones where already recovered artifact assemblages plus the planned magnetometer survey suggest especially high and especially low rank. The selection of the six

initial households plus the other four for excavation was thus strongly guided by prior knowledge. Existing information about artifact assemblages from shovel probes and stratigraphic tests was used to select the six likeliest candidates for households near the top of the social scale and the 18 likeliest candidates for households near the bottom of the social scale. These 24 household locations were subjected to a magnetometer survey to narrow the selection down further to four households near the top, and six households near the bottom of the Recent period social scale. The magnetometer survey assured that reasonably well-preserved features and architecture were there to be found at these locations.

2.1 THE MAGNETOMETER PROGRAM

Geo-magnetic methods permit the visualization of subsurface intrusive elements through images. The presence of these objects is understood as an “interference” or as an “anomaly” of the magnetic field coded as part of a gradient or a range of colors with values in nanoteslas (nT). Archaeological features such as middens, cemeteries, paths or larger storage facilities are readily detectable using this method due to the fact their presence substantially affects the normal subsurface magnetic values. For example, from the 98 households detected for the Recent period, Household 43 was part of the magnetometer survey carried out in 2009; it revealed in one area of 9 m by 28.5 m (Figure 2.2) a probable circular house floor of about average size for the Alto Magdalena about 6 m across at the right center of Figure 2.2 (the green patch) with some indoor features (the small blue and yellow patches within the green zone), and a probable midden area (orange and blue patches to the left). In several areas of the

archaeological community of Mesitas in the Archaeological Park of San Agustín, a magnetometer survey was conducted in order to detect Recent Period households having some of these features. That survey was accomplished using a precision portable proton magnetometer/gradiometer G-856AX (Geometrics ®) with two sensors vertically aligned.

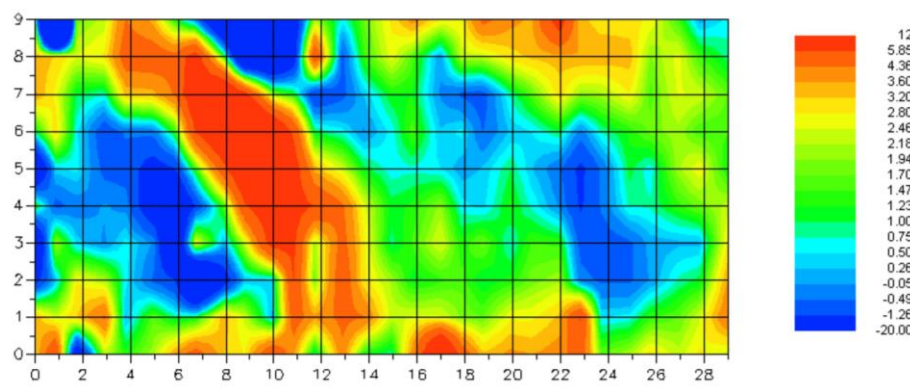


Figure 2.2. Magnetometer survey at Household 43 at Mesitas community.

The first step of the magnetometer survey was to divide the Archeological Park of San Agustín and surrounding areas in groups of grids or *survey zones*. In June and July of 2009 and from September to December of 2010 five zones were surveyed covering a total of 230 grids. Generally each grid was 10 by 10 m although in a few cases some covered a smaller area; for taking magnetic readings every grid was divided into units of 1 m. The zones were located on digital and paper maps designed by the Instituto Colombiano de Antropología e Historia which uses geodetic coordinates within the Magna Sirgas system with datum in Bogotá (González, Romano and Ordóñez, 2010). This kind of survey was developed in the field with four people; one was in charge of holding the magnetometer's computer and to take data every meter, another person was in charge of carrying and mobilizing the sensors every meter to allow taking readings constantly (Figure 2.3), and two more people were in charge of locating, ordering and constantly moving a series of tapes of 10 m within each grid to make the points'

readings a non-stop event; before every session of data collection these two people were also in charge of cleaning low vegetation and pruning branches to allow the movement of the equipment in a more efficient way.



Figure 2.3. Magnetometer survey, taking readings.

Fieldwork consisted, at first, of locating groups of grids, each one was delimited in its corners with wooden sticks to prevent interference or magnetic “noise,” the south-western stick was marked with the number of that grid and its coordinates. After locating several of these units, the process of taking magnetic readings started with two people placing transects either on the ground or holding them aially. Transects were basically mobile tapes of 10 m having a mark every meter to allow taking readings every meter over that distance. Strictly speaking, a reading every meter consisted of two readings, one coming from the bottom sensor and the other coming from the top sensor, then every grid produced a group of 200 readings. In every grid data was gathered from the left side to right, starting in the south-west corner and ending in the south-east one, and advancing from south to north and vice versa until reaching the end of the tenth line. Thus, every grid of 10 m in size had 10 transects, embraced 100 points

of reading, and represented 200 data values of magnetic intensity (Figure 2.4) (González, Romano and Ordóñez, in preparation). Given the conditions of vegetation in the Archaeological Park of San Agustín, the maximum number of grids that could be surveyed in one day was ten to eleven. During highly rainy days surveying activities were suspended because higher levels of humidity significantly affect the normal range of magnetic intensity. During normal daily activities, X and Y coordinates per grid were also recorded, along with magnetic data collection. In addition, the numbers of both the initial and ending transects with their subsequent numbers of consecutive points scored, the data collection date, and its general location with respect to other grids in its vicinity. Pictures and drawings of both pre-Hispanic and contemporaneous features or alterations complemented all this information. The batteries of the magnetometer were recharged every day to avoid getting misleading information. Data was imported and secured on computers at two times daily, one at noon and another during the afternoon to ensure copies for security, to have control over data and to verify its consistency. MagMap2000 (version 4.0) and MagPick (2.x/3.0 versions) software directly provided by Geometrics® permitted the organization of the datasets and production of the first digital maps of magnetic surfaces to correlate with archaeological features in every zone; further editions of the maps were saved in AutoCAD Map (AutoDesk) and Surfer 8.0 (Golden Software).

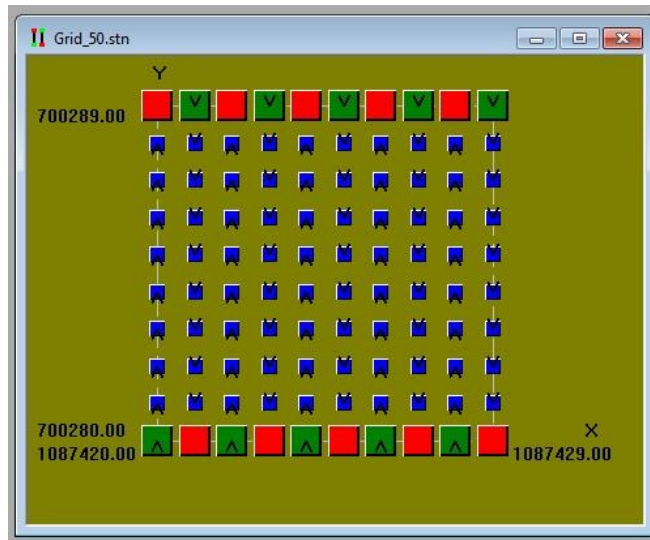


Figure 2.4. Magnetometer survey. Grid of 10 by 10 m with points every 1 m.

Four zones were covered in the Archaeological Park of San Agustín, named Zones A, B, C and D. A fifth one was outside the park, on the farm of Mr. Carlos Burbano, and was given the name of Zone E (Figure 2.5). Zone A corresponds to the soccer field and much of the flat area beside it to the northwest; it covers 118 grids following consecutively from 001 to 118 (Figure 2.6). Zone B was established on a small hill located between Mesitas B and C on the right side of the current path that joins them, it consists of 9 grids ordered from 119 to 127. Zones C and D correspond to a line of low hills by the left side of the tourist path going from Mesita A to Mesita C, Zone C grouped 23 grids from 128 to 150 (Figure 2.7), and Zone D clusters 53 grids numbered in order from 151 to 203 (Figure 2.8). Zone E corresponds to a flat portion of Mr. Burbano's farm in which were surveyed 17 grids numbered from 204 to 220 (Figure 2.9). The excavations of Households 1, 2, 7, 8, 9 and 10 were within Zone A; Households 4 and 5 belonged to Zone C; Household 6 was investigated in Zone D; and finally in Zone E, the excavations of Household 3 were carried out (Figures 2.6 to 2.9). No excavations were implemented in Zone B.

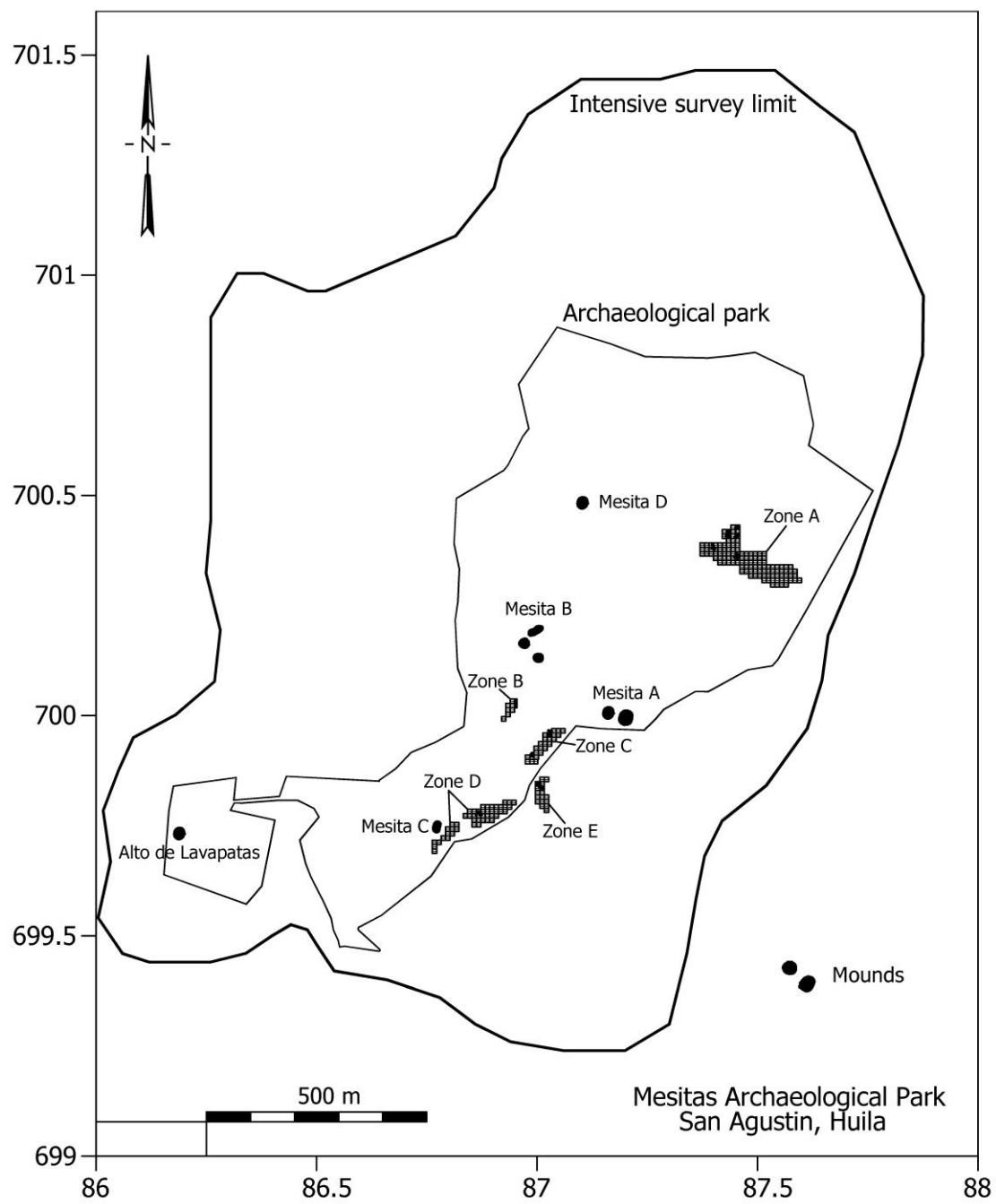


Figure 2.5. Magnetometer survey zones A, B, C, D and E.

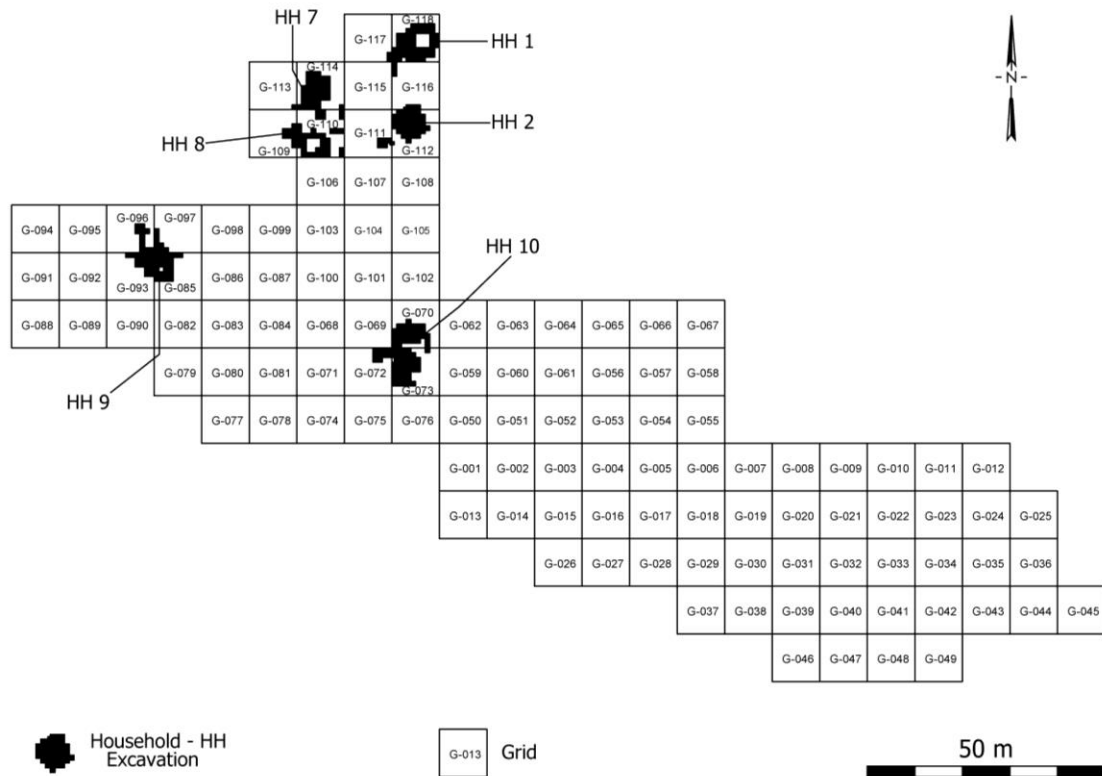


Figure 2.6. Magnetometer survey. Zone A.

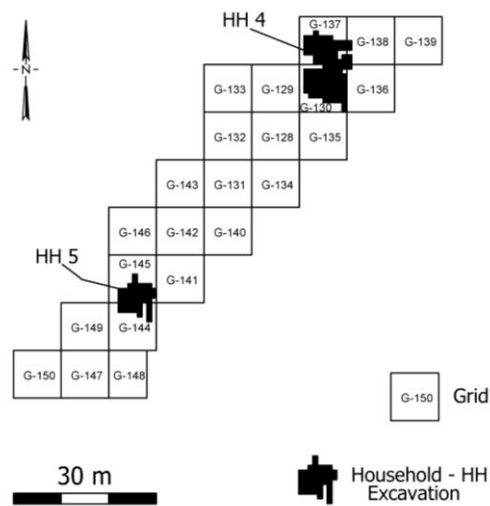


Figure 2.7. Magnetometer survey. Zone C.

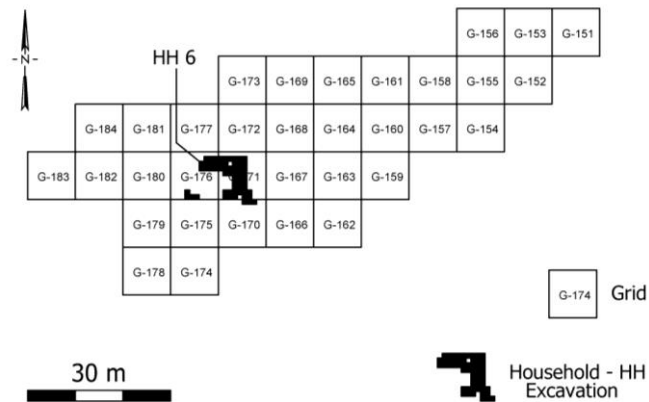


Figure 2.8. Magnetometer survey. Zone D.

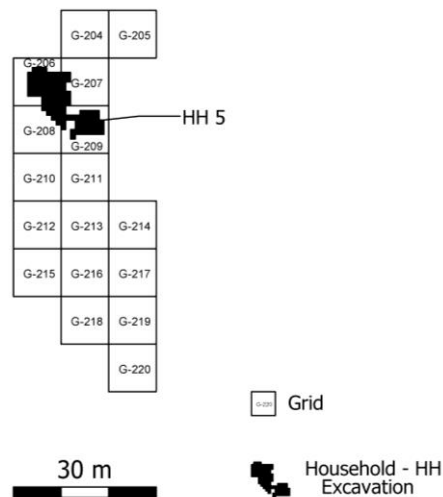


Figure 2.9. Magnetometer survey. Zone E.

Zone A reflected modern day alterations produced long before the terrain became part of the Archaeological Park: ditches, small patches of raised fields, tomb holes as the result of treasure hunters, and some remains of barbed wire attached to trees were the product of ancient fences. Despite this, an area of 1,300 m² distributed in Grids 106 to 118 within Zone A were chosen as the starting point for the first excavations due to the distribution of two larger

patches of high intensity magnetic values of subsurface features. An area of negative values between -1.90 and -23.20 nT is located towards the northern portion in Grids 106, 107 and 108 marked within the gradient by blue colors. The other, shown in Grids 115 and 116, exposed positive values between 1.52 and 14 nT represented in the gradient by the orange to red colors (Figure 2.10). In Grids 107 and 115, within the areas of high intensity, we proceeded to dig two shovel probes of 40 by 40 cm that confirmed the presence of heavy midden deposits. This result basically permitted us to correlate areas of highly positive and negative magnetic values with middens accumulations in external areas of households.

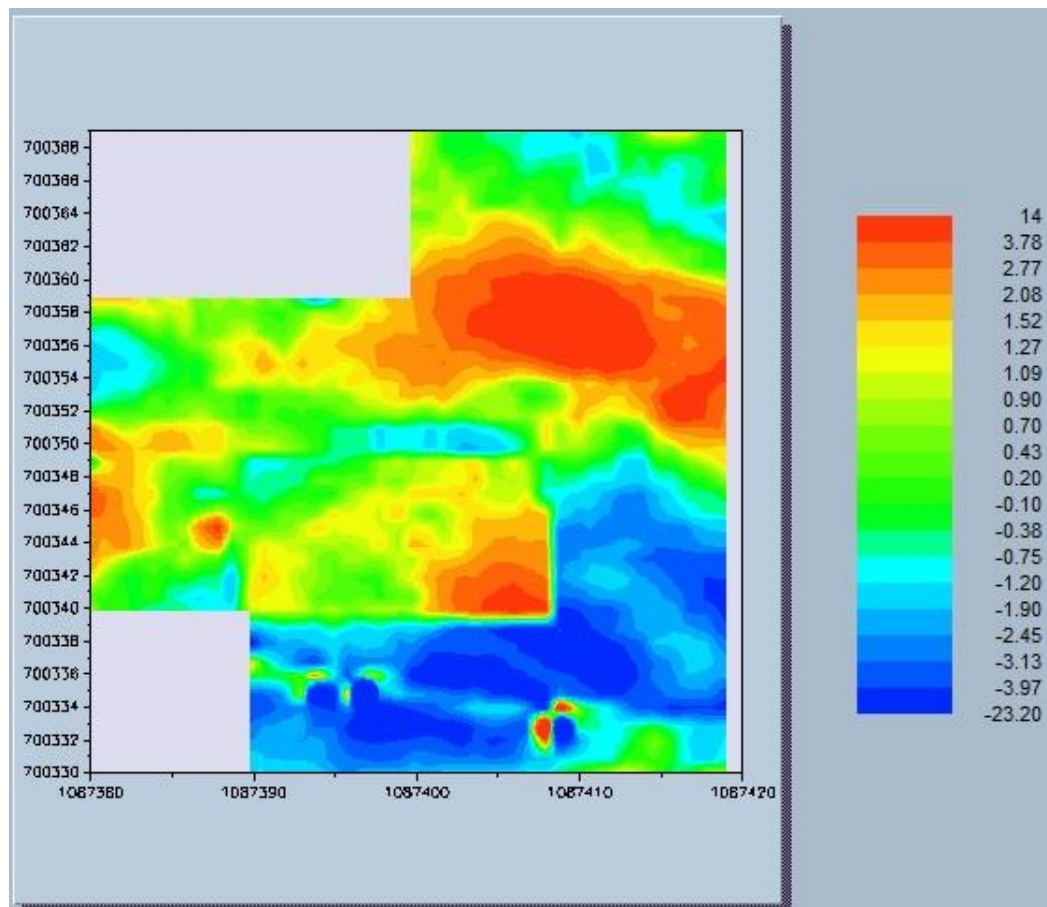


Figure 2.10. Magnetometer survey, gradient in Grids 106 to 118 (Zone A).

By extension, I assumed the magnetic values within the range of -1.20 to 1.27 nT marked within the gradient by the green to the light blue colors in Figure 2.10 likely were related to areas of house floors exposing much less alteration of the magnetic field as a result of much less concentration of archaeological materials; as has been seen in other investigations (Blick 1993: 109, 125, Drennan 1985: 131-35, Jaramillo 1996: 81-85). These 13 grids also provided the magnetic parameters to follow in the other zones for the recognition of other households. The magnetometer survey evidenced then, that small and/or isolated features like post molds or mixed soil fillings are difficult to correlate with numerical values within the magnetic gradient. However, magnetometer results are very effective when it comes to heavy midden areas, tomb areas and pathways which strongly affected the subsoil's normal magnetic intensity.

2.2 EXCAVATIONS

The first stage of the work, then, was the magnetometer survey of the 24 household locations indicated above. Once the ten locations for excavations were selected, the field team was enlarged to start excavations. As noted above, household locations were also selected on the basis of a modest depth of stratigraphic deposits (between 30 and 40 cm normally). Excavations began as 1 by 1 m units, excavated following natural and cultural strata. Every unit was oriented to the north. Units were expanded by adding 1 by 1 m squares as necessary. The group of excavations from every household was geo-referenced following the Magna Sirgas system with datum in Bogotá. A total of 640 m² were excavated in ten household locations.

Figure 3.1 shows the general location of these sites at Mesitas.

The process of digging, started by removing the roots zone, which generally ranged from 5 to 8 cm, although in some cases reached 10 cm or more. This was followed by the excavation of 10 cm of stratigraphic levels using shovels and trowels, also following the natural stratigraphy until reaching the sterile soil. Following the procedure of the intensive survey test excavations carried out by the Programa de Arqueología Regional en el Alto Magdalena (PARAM), every unit of 1 m² of excavation received a name followed by the acronym (FR), a consecutive number (i.e.: 001), and a sequence of capital letters alphabetically ordered (i.e.: A, B, C, D) for each conventional stratigraphic level of 10 cm; then, for example, if the first unit of excavation had three levels, materials contained were coded as FR 001 / A (0-10cm), FR 001 / B (10-20cm) and FR 001 / C (20-30cm). Features received the same nomenclature by adding a consecutive number to that feature (i.e.: FR 001/B – feat. 1). A profile and surface feature, if any, were drawn of every excavation unit. Records were taken from each conventional stratigraphic unit, as were notes from every natural layer when the soil changed. Deposits were passed through a quarter-inch (0.6 cm) screen for recovery of lithic, ceramic, and other artifacts. All these materials were collected and kept in properly labeled bags with the above mentioned type of data. Analyses of artifacts were carried out in the laboratory of the Programa de Arqueología Regional en el Alto Magdalena in the Parque Arqueológico de San Agustín. This study provided a sample of ceramics (n= 23,676), chipped stone items (n= 2,137) and ground stone items (n= 149) making possible the reconstruction of the general domestic assemblage in ten household clusters from the Recent period (AD 900-1530) of the Alto Magdalena located within the central community of Mesitas (Tables 3.1 to 3.4). This sample

facilitated the comparison with the previous Regional Classic period (AD 1-900) dataset also coming from the same community provided by González (2007). More detailed information of every household's artifacts with its group of excavations and related features are presented in the following Chapter 3. And the complete data about all these Recent period artifacts along with their excavations proveniences per household are available electronically in the University of Pittsburgh Comparative Archaeology Database (<www.cadb.pitt.edu>).

All these larger excavations permitted the correlation of magnetic intensities with archaeological features such as floors and structures; and made it possible to document the size and manner of construction, reveal the nature of internal features and external features, and permit the recovery of a sample of artifacts associated with them, as well as provide a sample of artifacts associated with external midden deposits. This household sample covered the extremes of the Recent period social scale; the following analyses were made in order to evaluate how different these households were in terms of standards of living from those of the Regional Classic. Information already available about artifact assemblages and the magnetometer survey carried out made it possible to home in efficiently on the extremes of the scale and accomplish the research objectives efficiently. Finally, this research was carried out as part of the Programa de Arqueología Regional en el Alto Magdalena (PARAM), a long-standing collaborative effort of the Instituto Colombiano de Antropología e Historia and the University of Pittsburgh.

2.3 LABORATORY ANALYSIS

Ceramic objects were classified using the ceramic chronology developed by Drennan (1993), where Barranquilla Buff ceramics are the diagnostic ceramic type of the Recent period. To characterize the general domestic ceramic assemblage the sample was divided into basic ceramic forms such as jars, bowls, plates, bottles, tripod legs, cups and any type of vessel with handles. These are fully described in the archaeological literature of the region; spindle whorls that were manufactured from pieces of sherds are also considered as part of the ceramic assemblages. All these ceramic forms were differentiated through rims; in the case of cups through bases. A collection of 1,828 of these items permitted the reconstruction of the entire group of vessel forms. The decoration attributes of the ceramic sample were classified under the categories of finger print impressions or "*Dactilar*", "*Incision*", "*Impression*", "*Apliqués*", "*Positive painting*", "*Corrugated*" and "*Composite*" (this last for sherds that combine two or more styles) (Drennan 1993; Duque and Cubillos 1981, 1988, 1993; Llanos 1990, 1993, 1999; Llanos and Ordoñez 1998, 1990; Moreno 1991, 1995; Sánchez 1991). Chipped stone materials were classified following two criteria: the quality of raw material and the type of artifact. Raw material was divided into two exclusive categories: "good quality material" which includes obsidian, chert and quartz; and "poor quality material" a category composed of andesite, basalt, rhyolite and slate. Aside from raw material, the artifacts were classified for their function. Knives, scrapers, notched scrapers and "*raederas*" (a type of knife having a curved cutting edge) were the most prevalent artifacts; drills, hammer stones, adzes, grinders and multifunctional tools were represented in smaller quantities. Cores and debitage also increase

the list. The majority of ground stone artifacts were characterized as manos, metates and polishing stones; in smaller quantities were found pendants, pounders or grinders, axes, spheres, hammers and anvils. Artifacts that showed a polished side but which could not otherwise be classified were coded as other. The great majority of ground stone tools were manufactured in coarse-grained basalts. As with the ceramics, the complete dataset of all chipped and ground stone artifacts and its excavations proveniences can be accessed electronically in the University of Pittsburgh Comparative Archaeology Database (<www.cadb.pitt.edu>).

These categories summarize basic pre-Hispanic domestic assemblages very well. All of them were analyzed in every household. These categories permitted a consistent comparison among the household assemblages of the Recent period coming from this study. In the same way they allowed comparison with the household assemblages of the preceding Regional Classic period of the Mestas community obtained in the study of González (2007). The proportions of ceramic artifacts by household are based on counts of all ceramics classified as pertaining to the Recent period. Since lithic artifacts cannot be dated by their own characteristics, the chipped assemblages for each household were based on a sample consisting of all the lithics from excavation units in which at least 80% of the ceramics were classified as Recent. As a result of this process there was a sample of 2,137 chipped stone items. The sample of ground stone materials (n= 149) came from excavations units having more than 95% of Recent sherds.

3.0 RECENT PERIOD HOUSEHOLD CLUSTERS AT MESITAS

Ten domestic areas belonging to the Recent period were partially excavated to accomplish the goals of this study. All were carried out in the municipality of Mesitas, San Agustin (Huila, Colombia) from December 2010 to August 2011. Prior to doing the excavations two seasons of a magnetometer survey were developed from August to November of 2009 and from September to December of 2010. The laboratory analysis of excavation materials started with the fieldwork and was completed in January 2012. Initially, I planned to dig in archaeological sites both inside and outside the Archaeological Park of San Agustin, but due to the refusal of some farmers to allow excavation on their properties, I focused much of the work in areas of the Archaeological Park. Household 3 was the only site placed outside the Park, located on the property of Mr. Carlos Burbano whose farm is to the south east of Mesita A from the Archaeological Park (Figure 3.1).

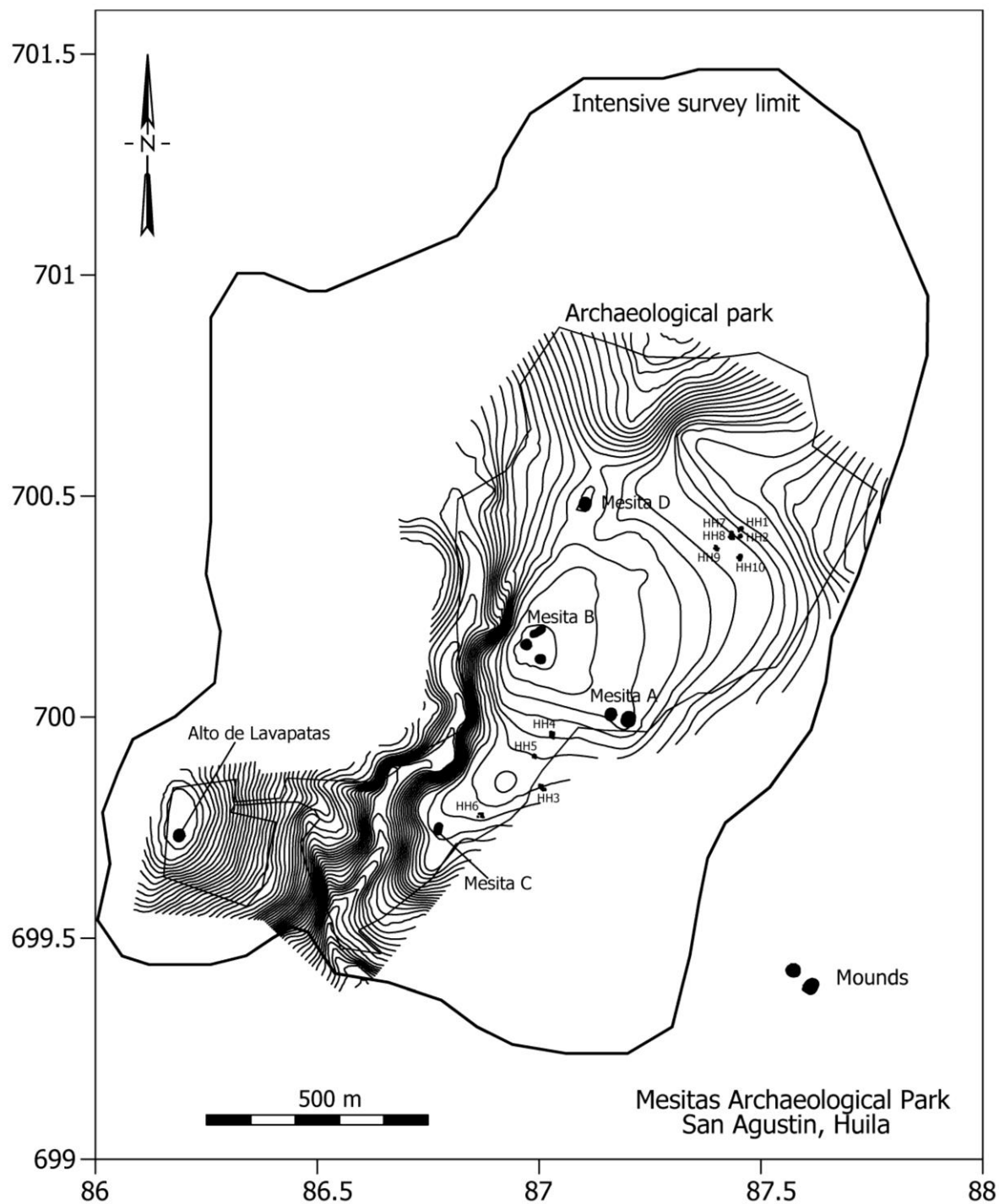


Figure 3.1. Mesitas community, Archaeological Park of San Agustín topography (Courtesy of Víctor González) and the location of household excavations (HH1 to HH10).

The Archeological Park of San Agustín and its surrounding areas are environmentally part of the Humid Climate Province. This presents an average temperature of 18 °C (\pm 64 °F), with a bimodal rainfall regime intertwined by two dry seasons, and with a rainfall regime oscillating between 1200 and 1800 mm. This Province embraces altitudes from 1,650 to 1,850 meters above sea level; the sites under scrutiny are located in an altitudinal range between 1,749 and 1,765 m. a. s. l. It is characterized by a topography of low hills with rounded to flat tops and mountains of strong inclination; the Mesitas area is part of a wide region in the Alto Magdalena known as *Altillanura Ignimbritica* (Herrera, Drennan and Uribe 1989); the archaeological sites of this study are located in an extensive area of sinuous hills with flat tops surrounded by gentle terrain (Figure 3.1). The soils are generally thin, poorly developed and have moderate fertility; in the excavations they have a shallow A Horizon of black to dark brown color, where the majority of archaeological material is found; it was preceded by a B Horizon culturally sterile of impervious clay of yellowish to light brown and grayish color that easily allowed the accumulation of water. The vegetation of the Archaeological Park is of a secondary forest with a high density and broad distribution of *caspes* (*Toxicodendron striata*) occasionally followed by cedars (*Cedrela montana*), oaks (*Quercus humboldtii*), *chachafrutos* (*Erythrina edulis*), walnuts (*Juglans neotropica*), arrayanes (*Qualea ingens*), rubber trees (*Hevea* sp), bamboos (*Guadua angustifolia*) and platanillos (*Heliconia huilensis*); these are mixed with patches of grasses, weeds and areas with little bushes.

The magnetometer survey was implemented, at first, in archaeological sites with evidence of the Recent Period. These areas were previously defined according to the distribution, density and the depth of archaeological deposits of Barranquilla Buff materials; the

ceramic type most representative of the Recent period in the Alto Magdalena region (Drennan 1993). For this purpose I used the datasets coming from the intensive survey, and the transects and grids programs of Mesitas, both conducted as part of the *Programa de Arqueología Regional en el Alto Magdalena*, PARAM. As mentioned in Chapter 2, thirteen grids (Grids 106 to 118) of the magnetometer survey were chosen for starting the excavations. Those grids correspond to the VG 502 collection lot of the SA 022 site from the regional systematic survey. They were nearby the excavation units ME 198, ME 200, ME 204, ME 206 and ME 214 from the intensive survey, and were placed in the vicinity of shovel probes 1724 to 1729 from the transect program and shovel probes 4244 to 4267 from the grid program. Magnetometer data in those 13 grids showed two larger patches of strong magnetic anomalies; one to the top east portion of Grid 115 and towards Grid 116 is marked in red because of highly positive values within the magnetic gradient (14 nT); the other, noticeable in blue and amply distributed to Grids 106 and 107, to the top west of Grid 108 and to the bottom east of Grid 112 is of highly negative values (-23.20 nT) (Figure 3.2). Two shovel probes implemented in Grids 107 and 115 within the areas of strong magnetic anomalies of both highly negative and highly positive values exposed midden areas of dense accumulations. Magnetometer results are very effective when it comes to heavy midden areas, tomb areas and paths which strongly affected the subsoil's normal magnetic intensity. Differently, features and isolated objects like post molds or soil fillings are too small to be detected through magnetic procedures. The excavation units, then, were located in areas that did not show strong magnetic anomalies normally and were represented in the gradient through the colors green, yellow and pale blue on the principle that

house structures would be kept clear of artifacts and left adjacent to dense midden areas marked by strong magnetic anomalies.

The excavation of every household was derived from this general principle. After determining the general areas to excavate the process of digging up units of 1m by 1m (see Chapter 2) followed. These units were progressively enlarged in order to achieve substantial coverage of internal and external areas to the house, to obtain samples of artifacts and to find significant features such as floors, post molds, hearths, storage pits and middens. The ceramic assemblages per household were discerned using the entire sample of the Barranquilla sherds. The assemblages of chipped stone materials, instead, were established using the whole set of materials coming from units that had more than 80% of Recent ceramics (see description in Chapter 2). The following households' descriptions include the general environmental layout, the magnetometer results, the number of excavation units and the area covered, the stratigraphic characteristics of the deposits, the proportions of Recent materials to other periods' materials, the ceramic and lithic assemblages, the excavation units discarded in the process of the lithic analysis for having less than 80% of Recent ceramics, the type of archaeological features found, and the description of Recent materials' densities as opposed to other periods with its subsequent temporal associations to such features.

3.1 HOUSEHOLD 1

Household 1 is located at 1765 m.a.s.l. in a flat area to the north-west of the soccer field, on the grounds of the Archaeological Park of San Agustín. It corresponds to an area of

secondary forest vegetation with a high presence of *caspe* trees, ferns and *platanillos*, and some rubbers, cedars, myrtles and walnut trees. The remains of older tomb looters were discovered in adjacent areas to the excavations, as were ditches and raised fields of contemporary origin. Excavated Household 1 does not correspond exactly to any of the initial 98 households defined on the basis of previous research. It appeared in the magnetometer survey some 100 m north of Household 41 (Figure 2.1). This area conforms to the collection lot VG 502 from the SA 022 site from the regional systematic survey. It is around 10 meters to the south-west of the excavation unit ME 214 from the intensive survey program; about 20 meters to the left side of shovel probes 1726 to 1729 from the transects program and adjacent to the shovel probes 4265 to 4267 from the grids program; and, it is located between the Grids 115, 116 and 118 from the magnetometer survey. The magnetometer survey showed a high intensity zone of magnetic values between 3.78 and 14 nT to the north-east of grid 115 and to the south-west of grid 116, as well as a high intensity zone of magnetic anomalies ranging from -3.97 to -23.20 nT in the south of Grids 106, 107 and 108, both corresponded to dense areas of midden deposits in addition to tombs (colors red and blue in Figure 3.2). The excavations of Households 1 and 2 corresponded to this large area; Household 1 is located to the north-eastern side of the red gradient between Grids 115, 116 and 118, Household 2 is situated to the north-eastern side of the blue gradient in Grids 107, 108, 111 and 112 (Figure 3.2).

Household 1 covered 58 m² of excavation, aggregated into 58 units. A portion located towards the north-eastern sector could not be excavated due to the presence of large roots (Figure 3.3). Two natural strata were recognized from these excavations, a black soil with cultural materials and a yellow-brown to yellowish clay soil culturally sterile (Figure 3.4).

Archaeological deposits were distributed into two to three conventional stratigraphic levels, generally no deeper than 28 cm; the sterile soil began after this. Units FR 008 and FR 100 were exceptional for having four levels of excavation because the presence of materials coming from the dense midden; the sterile soil appeared at 46 cm depth. The Barranquilla Buff ceramics from the black soil represented 92% of the whole sample; the remaining 8% are materials from the preceding Regional Classic and Formative periods. The majority of the Recent materials were found in levels A and B, and some occasionally appeared in level C. The Barranquilla sample is composed of several types of vessels, decorated and undecorated objects and some spindle whorls (Table 3.1). Along with these materials were found chipped stone tools, cores and substantial frequencies of debitage produced from various types of raw materials (Tables 3.2 and 3.3); and, some ground stone tools made in coarse grain basalts (Table 3.4). Samples of charcoal distributed indistinctively in several units were also taken. In this household, unit FR 084 was withdrawn from the analysis of chipped stone materials. A plot of contours illustrating the overall Barranquilla Buff ceramics' densities denote one high concentration of materials towards the south-western corner of the excavations in units FR 008, FR 098 and FR 100; another one is towards the northern corner in unit FR 036 and has a small accumulation of Barranquilla sherds mixed with some rocks (Figures 3.5 and 3.6). The densities of material from other periods were located towards the south-east section of the excavations and came from the midden deposit.

Substantial numbers of features were found in the transition between the cultural strata and the deepest sterile stratum at depths between 23 and 28 cm (Figures 3.4 and 3.7), although there were some small concentrations of Barranquilla Buff sherds and rocks located on level C

of unit FR 042. The rocks and a Barranquilla bowl found on level C of units FR 082-084 started in the black soil in the previous stratigraphic layer B. Features mainly correspond to 42 post holes; several of them were delimiting the circular area, possibly from the Recent period (dashed line in Figure 3.7), probably rearranged several times during that period. Post holes had diameters between 15 and 20 cm and depths between 20 and 32 cm, although in units FR 002, FR 005, FR 058 and FR 022-024 some of them appeared to be shallower with larger dimensions. The post holes that form the house's circular perimeter were separated by distances of 80 to 150 cm, although it is possible that some of them were not noticed in the longer intervals. They would have belonged to a circular structure with a diameter between 7.4 and 7.8 m, covering an area between 43 and 50 m² (Table 3.5). It is also likely that post molds outside this perimeter belonged to larger houses' structures; rocks working as wedges were placed on the side of some post holes. Posts located within the inner circle might have corresponded to internal divisions, supports for the roof, above ground storage facilities, or simply pertained to the house's rearrangements over time. Shallow patches of mixed earth (having no more than 5 cm in depth) found in units FR 088 and FR 104 (Figure 3.7) may have corresponded to intentional filling for leveling the house floor which probably took place because of constant traffic or the development of certain activities. A crescent-shaped hole containing no archaeological materials appeared in unit FR 008; it may have been a storage feature of perishable materials, or simply an animal's nest. Doorways may have been located to the south-eastern side of the excavations, where the densities of Barranquilla materials were low.

The proportions and the densities of cultural material from the Classic and Formative times indicate there were occupations of the site prior to the Recent; but the midden deposit

adjacent to the house perimeters in unit FR 100 have 90% of Barranquilla materials, and the small midden from FR 042 encapsulates 98% of Barranquilla materials. The proportions, the densities and the distributions of Barranquilla items allow us to say that most of the features were part of an ancient structure of the Recent Period.

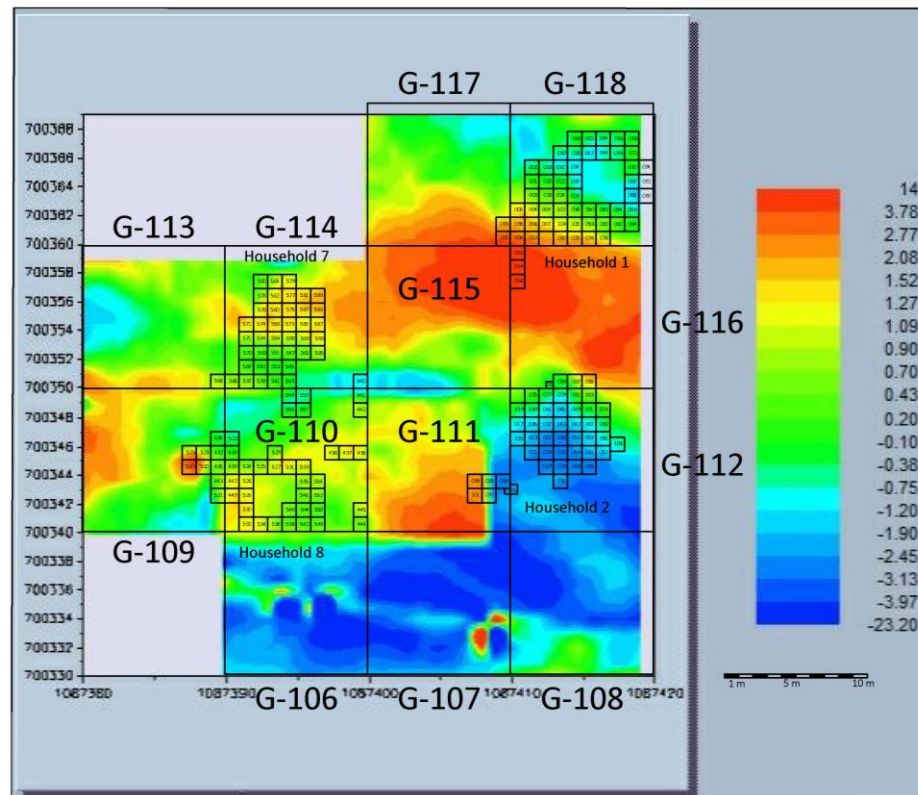


Figure 3.2. Magnetometer survey, Grids 106 to 118. Household 1 is on the top right in Grid 118.

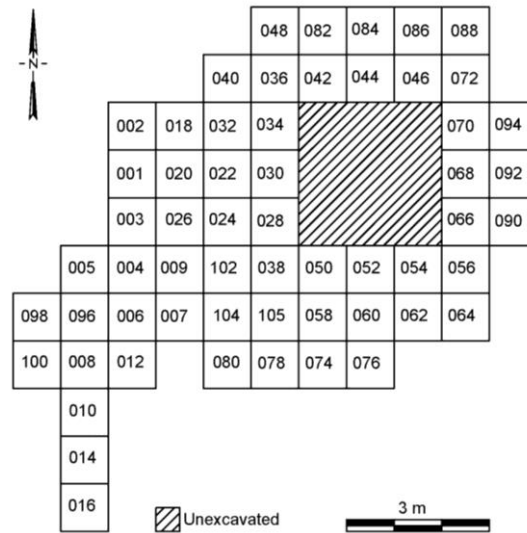


Figure 3.3. Household 1, units of excavation.

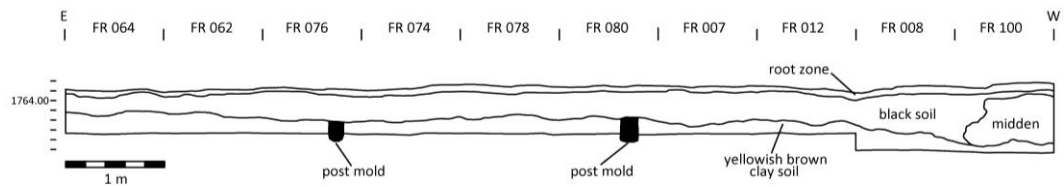


Figure 3.4. Household 1, profile.

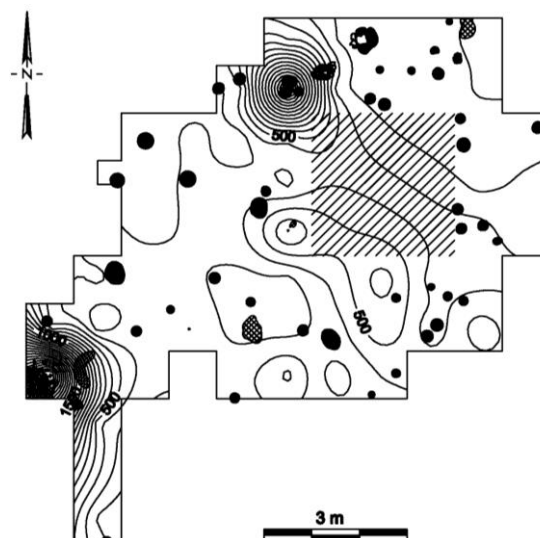


Figure 3.5. Household 1, Recent period sherd density.

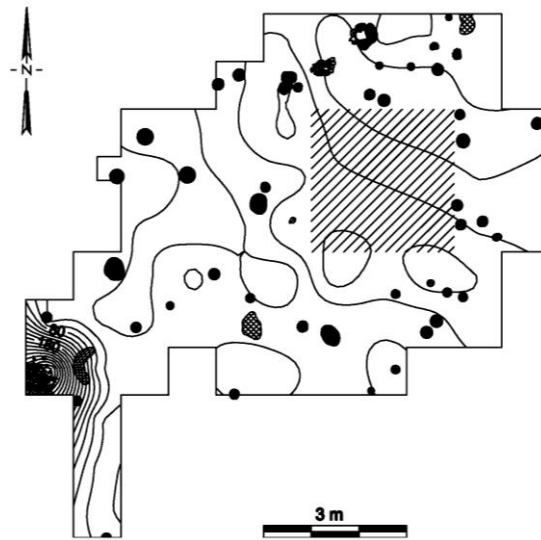


Figure 3.6. Household 1, Formative and Regional Classic period sherd density.

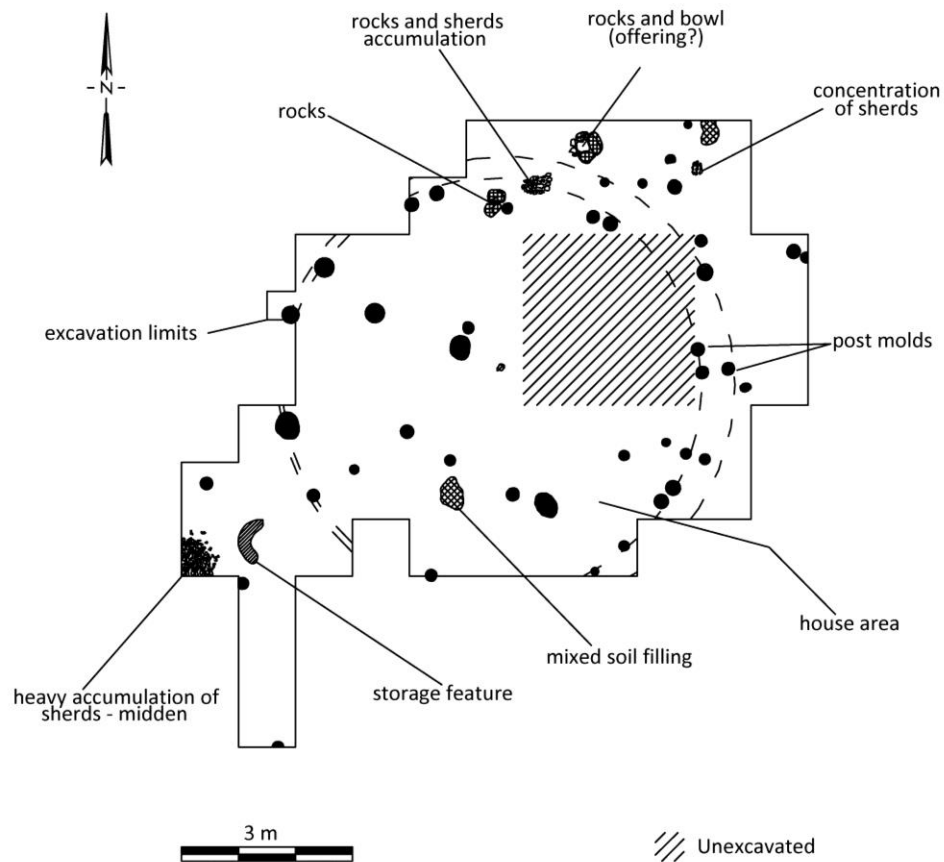


Figure 3.7. Household 1, features.

3.2 HOUSEHOLD 2

Household 2's excavations were 8 meters south of the previous Household 1, also located at 1765 m.a.s.l. The topography and vegetation's characteristics are the same as that previous household. This household is located 90 m to the north of Household 41 (Figure 2.1). This area corresponds to the collection lots VG 502 from the SA 022 site from the regional systematic survey; placed 12 meters around to the south-west of the excavation unit ME 214 from the intensive survey program; placed about 22 meters to the left-side of shovel probes 1724 and 1725 from the transects program and 5 meters to the left side of shovel probes 4262 and 4263 from the grids program. It is located between Grids 106, 107, 108, 111 and 112 from the magnetometer survey (Figure 3.8). The magnetometer data from Grids 106 to 108 revealed a high intensity zone of magnetic values ranging from -3.97 to -23.20 nT related to areas of dense midden deposits by the side of tombs (dark blue color in Figure 3.8). Household 2 was located at the upper most portion to the north-eastern side of the blue gradient in Grid 112 where the high intensity magnetic gradient diminished.

Household 2 covered 46.5 m² of excavation, distributed into 48 excavation units. The vegetation conditions of big trees did not allow digging to the north and west sides of units FR 085, FR 087 and FR 089. Units FR 093 (with an extension called FR 093a), FR 095, FR 097, FR 099 and FR 101 were separated from the main group of units to recover material coming from the midden zone (Figure 3.9). Two natural strata were recognized in this group of excavations, very similar to those described for Household 1 (Figure 3.10). Archaeological deposits were mainly distributed into two conventional stratigraphic levels (A and B), although units FR 015, FR 017,

FR 019, FR 071, FR 075, FR 077, FR 081, FR 083, FR 089, FR 091, FR 093, FR 093a and FR 101 reached a third level C. Archaeological deposits were no deeper than 23cm; right after this the sterile soil appeared. The collected sample of Barranquilla Buff ceramics embodied 83%; the remaining 17% corresponded to materials from the Regional Classic and Formative periods. The sample of Barranquilla items aggregates various types of vessels but no bottles and handles, included decorated and undecorated sherds and one spindle whorl (Table 3.1). Cores, lithic debitage and several chipped stone tools but multifunctional artifacts appeared in different types of rocks (Tables 3.2 and 3.3), and a few ground stone tools were part of the sample (Tables 3.4). The lithic materials coming from the twelve units FR 011, FR 031, FR 047, FR 075, FR 081, FR 077, FR 079, FR 085, FR 093, FR 093a, FR 099 and FR 103 were discarded from analysis. Greater densities of Barranquilla Buff ceramics are observable to the west and north sides of the excavations, in units FR 013, FR 015, FR 017, FR 019, FR 035, FR 039, FR 081, FR 083 and FR 085 immediately next to a group of post holds delimiting the house perimeter; the higher concentration of ceramic materials from precedent periods are concentrated in the central-east section covering units FR 043, FR 047 and FR 067 (Figures 3.11 and 3.12).

The majority of features correspond to post holes (n= 50); they were generally observed in the limits of the black soil and the yellowish brown clay, which ranges between 18 and 23 cm (Figures 3.10 and 3.13) among the excavations. The dispersion of them shaped a circular structure (dashed line in Figure 3.13) that would have had a diameter between 5.8 and 6.3 m, an area between 26 to 33 m², and belonged to the Recent period (Table 3.5). They are separated by 80 cm to 170 cm in an irregular pattern, with the possibility some have not been noticed within the larger gaps. Post holes outside these limits may have corresponded to

Recent period rearrangements, inside the limits they may have helped in delimiting internal divisions of the house; it is also possible that some of them could have been part of ancient structures from periods precedent to the Recent, based on the distribution of higher densities of materials from other periods. A burned soil area found in unit FR 047 may also have pertained to a precedent period structure. Overall, post holes have diameters between 13 and 18 cm and depths between 18 and 28 cm, but in units FR 035-039 and FR 081 they were larger than 30 cm and depths range from 15 to 18 cm.

Other features consisted of shallow patches of intentionally mixed soil filling found in units FR 077-079-089-091 and FR 051-053; a patch of 50 by 50 cm of burned soil with charcoal found in unit FR 041 could have served as a hearth; and in units FR 055, FR 057 and FR 103 in the south-eastern flanks of the excavations appeared a singular feature of brown soil reaching depths between 35 and 40cm and likely to be the remain of a small walkway to the house. To the north-western flank, in unit FR 019, a feature for storing liquids was found containing the remains of two Barranquilla jars, one of them exposing the typical *dactilar* impressions in its rim and corrugated decoration on a restricted neck with a small Barranquilla bowl on its top, this feature was found 60cm below the beginning of the yellow sterile soil at 22cm. Aside from a good number of ceramic materials that enriched this household sample, a small midden accumulation of Barranquilla ceramics came into view within the limits of the black and the sterile soils in units FR 093 and FR 093a. Between FR 095 and FR 099 an intentional soil filling appeared, and finally, isolated in units FR 093 and FR 101 were two post holes. This area may have been used as an outside working area (Figure 3.13).

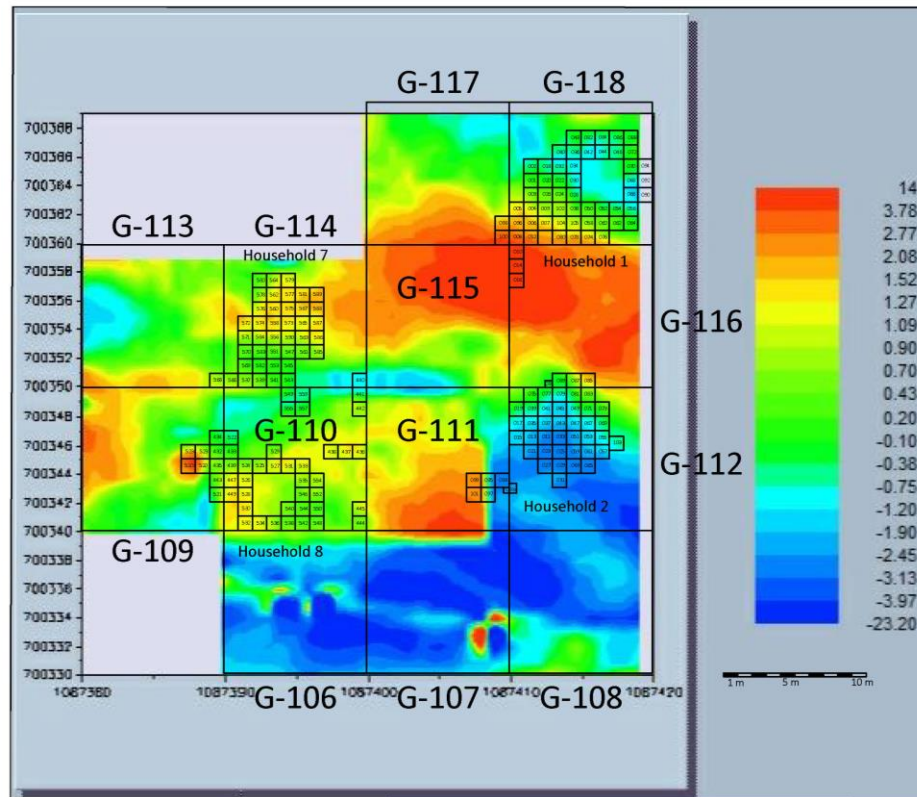


Figure 3.8. Magnetometer survey, Grids 106 to 118. Household 2 is on the bottom right in Grid 112.

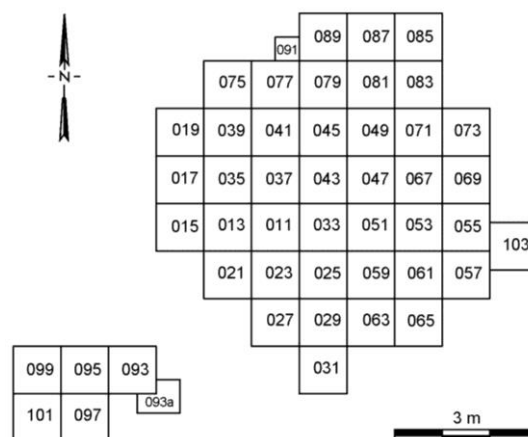


Figure 3.9. Household 2, units of excavation.

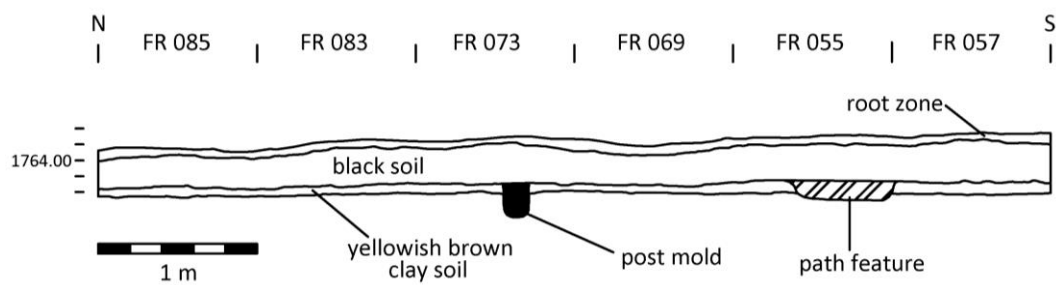


Figure 3.10. Household 2, profile.

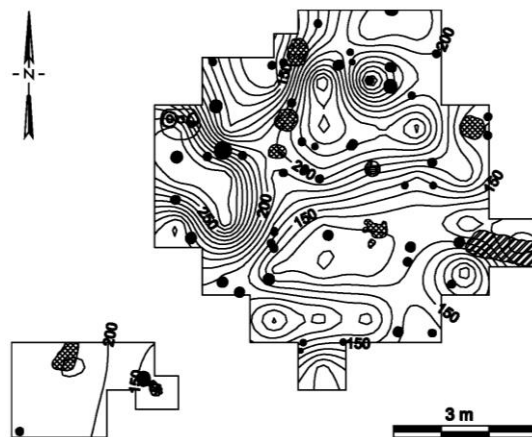


Figure 3.11. Household 2, Recent period sherd density.

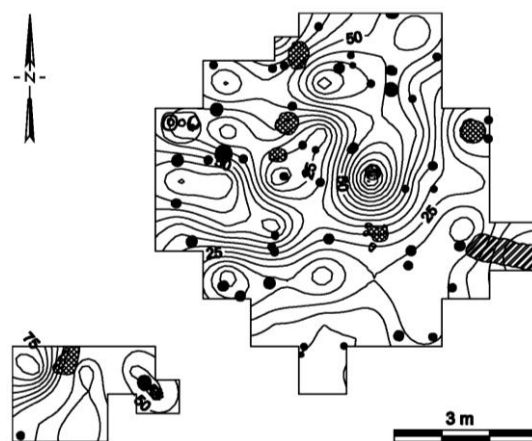


Figure 3.12. Household 2, Formative and Regional Classic period sherd density.

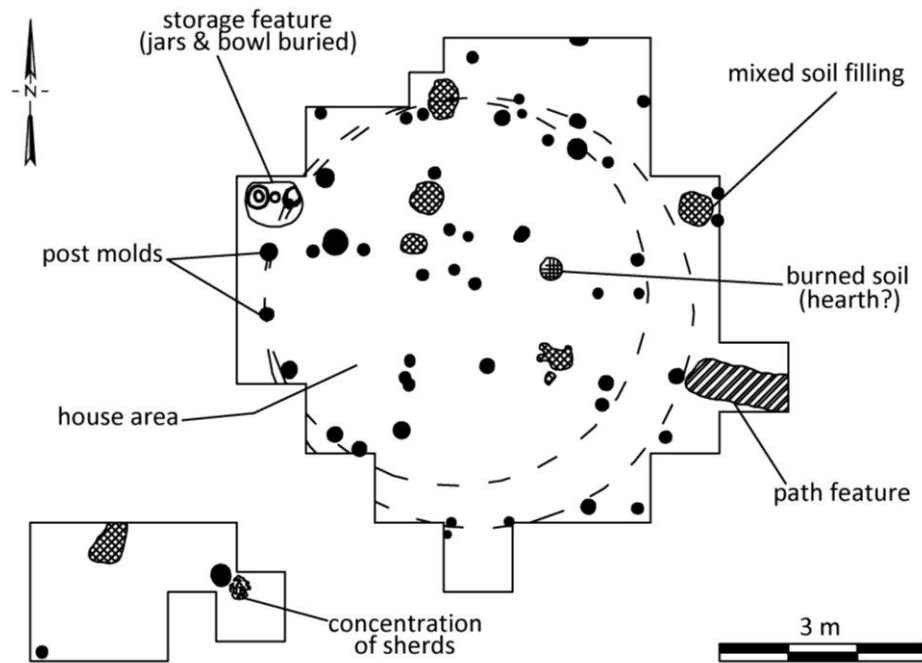


Figure 3.13. Household 2, features.

3.3 HOUSEHOLD 3

Household 3 is placed at 1753 m.a.s.l. This group of excavations was conducted outside the Archaeological Park on a portion of the farmland property of Mr. Carlos Burbano, located 160 meters south-east of Mesita A of the Archaeological Park. Excavations took place 30 meters south to the farm house, and do not correspond to any household of the initially 98 household areas from Figure 2.1. The farm today is covered by grasses distributed along a flat area on the top of gentle hills and adjacent to a small swamp; in some parts of the farm there are remains of contemporary raised fields and patches of constant cattle trampling that affected the

remains of ancient residential areas significantly. This area belongs to the collection lot VG 865 from the SA 116 site from the regional systematic survey; it is located in a north-east direction about 6 meters from the ME 130 excavation unit from the intensive survey program; it is 10 meters to the north-east of shovel probes 2816, 2817 and 2818 from the transects program; and, 20 meters farther from the shovel probes 5000 and 5001 from the grids program. It corresponds to Grids 206, 207, 208 and 209 from the magnetometer survey (Figure 3.14). A general area that was excavated on this site was located on the sides of two well defined areas of high intensity values of magnetic anomalies; that, according to previous experiences, were likely related to middens; a blue one located at the top of Grid 206 showed values from -1.85 to -10.9 nT, and a red one placed at the bottom of Grid 208 denoted values from 1.98 to 15 nT (Figure 3.14).

This household covered 104 m², aggregated into 104 units of excavation (Figure 3.15). From it were recognized a black soil with cultural materials and a sterile yellowish clay soil (Figure 3.16). Archaeological materials were broadly dispersed within two to three conventional stratigraphic levels no deeper than 26 cm. Units FR 191 and FR 193 partially covered a swampy area where the black soil stratum was very thick. The sample of Barranquilla Buff sherds aggregates the 95%, mainly found on the levels A and B, with very few counted on level C; the other 5% belonged to materials of the Regional Classic period. Barranquilla ceramics were represented by various types of vessels, but there were no bottles, nor any type of vessels with handles; there were decorated and undecorated objects and one spindle whorl (Table 3.1). Chipped stone tools made from various types of raw materials are represented by scrapers, knives, notched scrapers and *raederas*, some cores and debitage as well as a few ground stone

tools were part of the domestic assemblage (Tables 3.2, 3.3 and 3.4). All the lithic material coming from this household was useful for the lithic analysis in order that no unit contained less than 80% of Barranquilla materials. A plot illustrating the distribution of Barranquilla ceramics densities shows one high concentration in the middle of the excavations in unit FR 127 and its surroundings; another one is the result of ceramics mixed with rocks in the south-eastern corner of units FR 108 and FR 136. The densities of Classic period materials follow a similar pattern (Figures 3.17 and 3.18). The high density of Recent material in the middle area is in consonance with a small midden discovered in units FR 121, 127, 129, and 131 exclusively composed of Barranquilla materials. But the greater concentration of Recent materials displayed in the south-eastern portion may have been related to contemporaneous activities of cattle trampling that gave rise to the movement of grinding stones and rocks present in level B of units FR 124, FR 142, FR 143, FR 145, FR 147, FR 149, FR 150 and FR 151; and, also mixed with contemporaneous glass in some cases (Figure 3.19). Despite the fact that there were some post molds found in the sterile soil of the right sided units, I decided to suspend the excavations in that portion.

This household is composed of 30 post molds plus the above mentioned small midden, a patchy area resembling a walkway feature, and the intentional dirt fillings from units FR 157 and FR 130-132 which did appear in the transition between the black soil and the yellow clay at depths between 22 and 26 cm on level C. The rocks found towards the southern portion came into sight on level B (Figures 3.16 and 3.19). The dashed line in Figure 3.19 following the distribution of post molds marks a circular area of a possible Recent period house with a diameter between 5.8 and 6.1 m, and covering an area between 26 and 31 m² (Table 3.5). The

majority of post holes had diameters between 15 and 18 cm and depths between 16 and 26 cm with the exception of a larger and shallower one observed in unit FR 127. These post holes were separated by distances between 30 and 180 cm, and were not found in the larger gaps; it is possible the larger gaps in units FR 119, FR 121 and FR 127 corresponded to a doorway area.

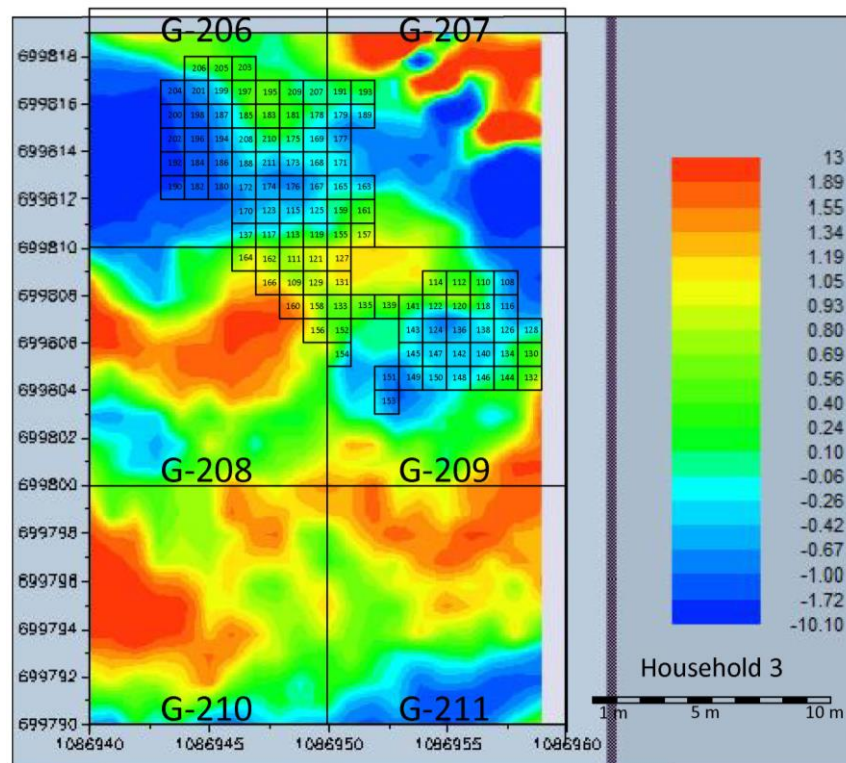


Figure 3.14. Magnetometer survey, Grids 206 to 211. Household 3.

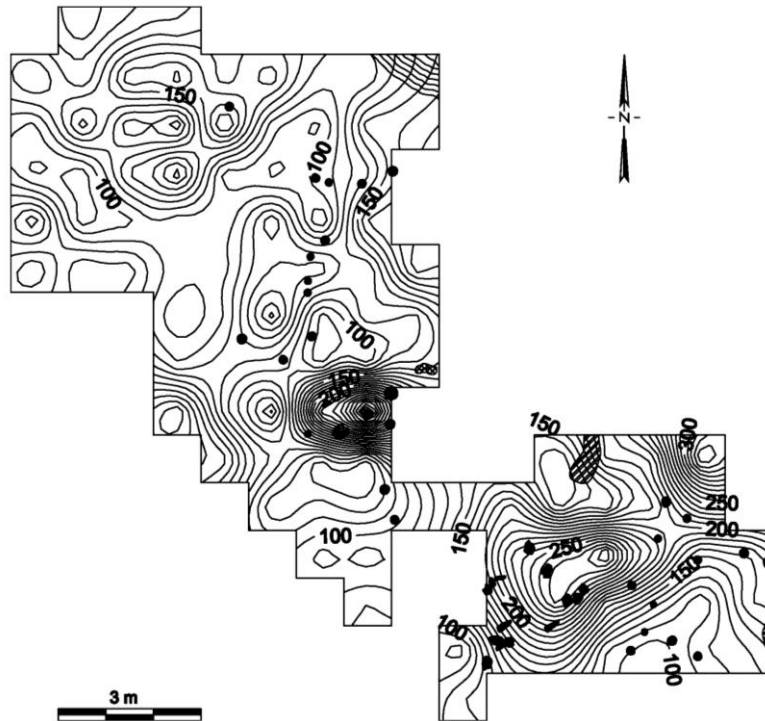


Figure 3.17. Household 3, Recent period sherd density.

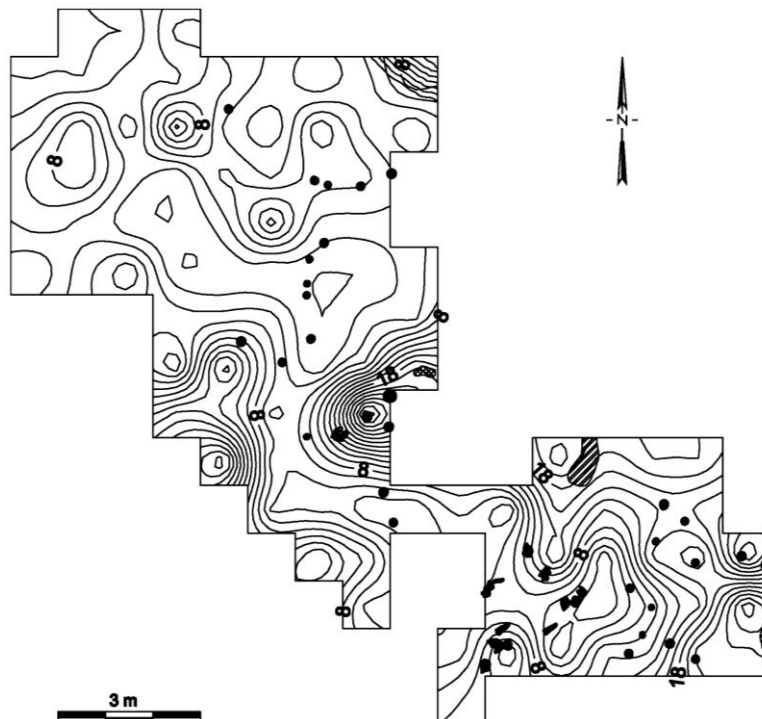


Figure 3.18. Household 3, Regional Classic period sherd density.

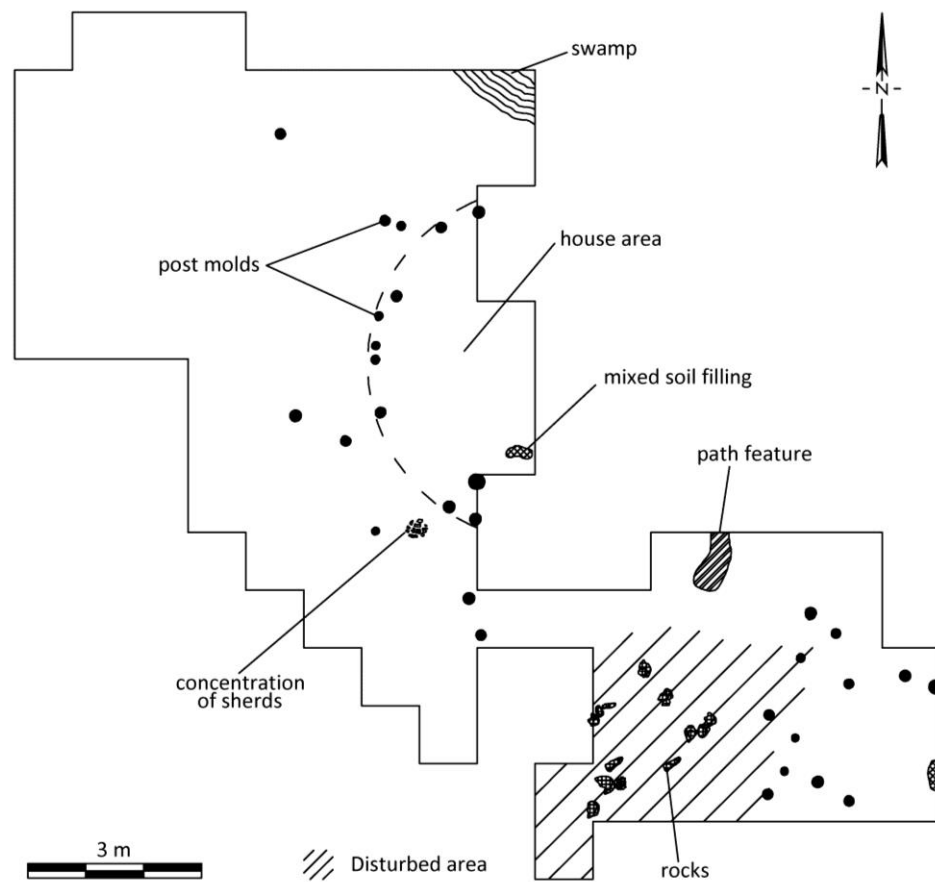


Figure 3.19. Household 3, features.

3.4 HOUSEHOLD 4

Household 4 is at 1754 m.a.s.l. on the top of a gentle hill separated from Mesita A by 95 meters from the Archaeological Park of San Agustín. It is in an area of secondary forest located between the boundary limit of the Park and the path that joins Mesitas A and C. This household corresponds to the Household 13 from Figure 2.1. These excavations took place in the area of collection lot VG 011 from the SA 003 site from the regional systematic survey. It is approximately 10 meters to the north of the excavation unit ME 100 from the intensive survey

program; placed adjacent to shovel probes 2530 to 2532 from the transects program, and 50 meters farther to the shovel probes 2542 from the grids program. It is located within the Grids 130, 136, 137 and 138 from the magnetometer survey (Figure 3.20). Magnetometer data from Grid 138 shows a large zone of high intensity values of magnetic anomalies ranging between 4.45 and 6.8 nT, possibly indicating a small midden area (red color in Figure 3.20).

Household 4 covered 110.3 m² of excavation, dispersed into 111 excavation units. Below the units FR 268, FR 270 and FR 272, there were three units that could not be excavated because of the vegetation conditions, quite the same occurred below FR 295, where the roots of a tree permitted the excavation of a small portion of 30 cm (Figure 3.21). Two natural strata were recognized in these excavations, one of a dark brown soil containing the majority of archaeological material, and a sterile yellowish brown clay soil (Figure 3.22). Archaeological deposits were mainly distributed into two conventional stratigraphic levels (A and B) accounting for the exceptions of units FR 216 and FR 267 that were not deeply extended through the third level C. Archaeological deposits were no deeper than 22cm, depth at which point the sterile soil generally appeared. The sample of Barranquilla Buff ceramics aggregates the 93%; the remaining 7% corresponds to materials from the Regional Classic and Formative periods. That Recent ceramic sample comprises decorated and undecorated sherds and various types of vessels with no bottles, cups or tripod legs and the largest sample overall of three spindle whorls (Table 3.1). The chipped stone assemblages include cores, debitage and several chipped stone tools manufactured in different raw materials (Tables 3.2 and 3.3); the sample of ground stone tools is composed of a substantial amount of polishing stones with few other items (Table 3.4). To perform the lithic analysis the chipped stone items were removed from the following

eighteen units: FR 216, FR 215, FR 217, FR 218, FR 219, FR 222, FR 224, FR 226, FR 228, FR 229, FR 230, FR 234, FR 240, FR 248, FR 268, FR 276, FR 278 and FR 280. The higher densities of Barranquilla Buff ceramics are clearly associated to a house perimeter (dashed line in Figure 3.25) and to midden deposits. To the north side in units FR 265, FR 273, FR 279, FR 269, FR 279 and FR 290 some accumulations of exclusively Barranquilla material appeared nearby an area of high intensity magnetic values; the higher concentration of ceramic materials from precedent periods are basically concentrated to the south side of the excavations in units FR 248, FR 234 and FR 215, possibly indicating that the burned soil feature and related areas were used before the Recent period (Figures 3.23, 3.24, and 3.25).

Post molds represent the greatest amount of features (n= 55); they were found within the limits of the dark brown soil and the yellowish brown clay at depths between 18 and 22 cm (Figures 3.22 and 3.25). Normally, the post holes in this area have diameters between 13 and 18 cm and depths between 18 and 30 cm, but some in units FR 278, FR 215, FR 225, FR 253-259 are larger than 25 cm and have a depth of 15 cm. The disposition of these in the bottom half area of the entire excavation suggest a circular structure of the Recent period having a diameter between 5.6 and 6.3 m, and enclosing an area between 28 to 33 m² (Table 3.5). They are separated by both small intervals of 10 cm to 15 cm and in larger gaps of 100 cm or more. It seems that some of these post molds could have corresponded to Recent period rearrangements of the house; others like those in units FR 223, FR 225, FR 239 and FR 245 could be associated to internal divisions of the house, another one present in units FR 225-239 might have helped in holding up the roof. The remains of burned soil coming from units FR 248-250-252 may have been used in a precedent period; the shallow patches of intentional dirt filling

found in units FR 227-233-235-237, FR 271-288-279-290, FR 279, FR 299 and FR 305 also seem to have been made in the Recent period as part of the leveling of the house floor surface. Finally, in the north-western flanks of the excavations, the feature of a walkway zone apparently connected to the house became visible in the dark brown soil; it reached 40cm and did not contain any ceramic material (Figure 3.25).

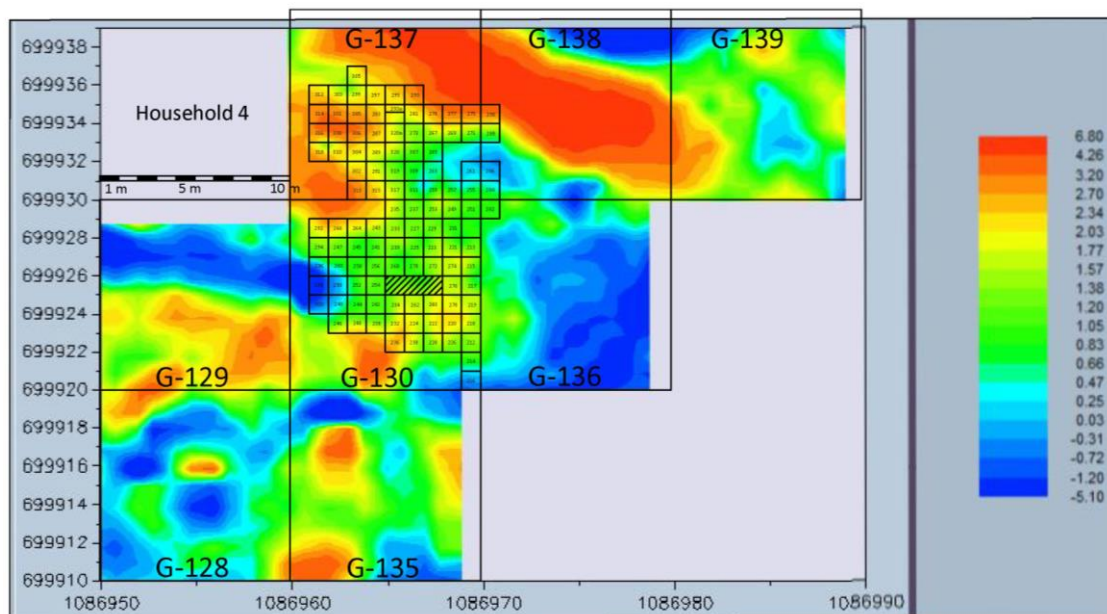


Figure 3.20. Magnetometer survey, Grids 128 to 130 and 135 to 139, Household 4.

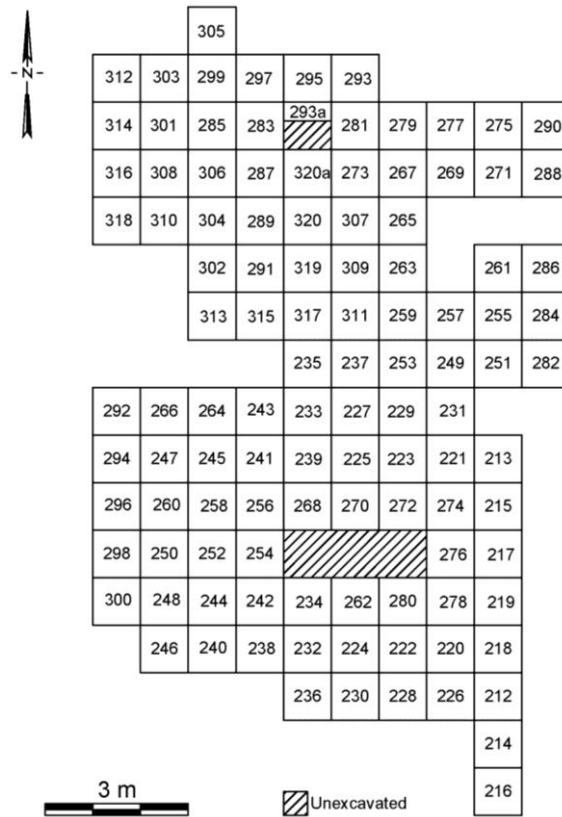


Figure 3.21. Household 4, units of excavation.

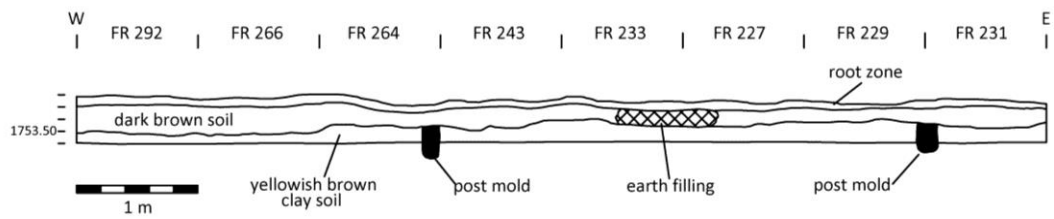


Figure 3.22. Household 4, profile.

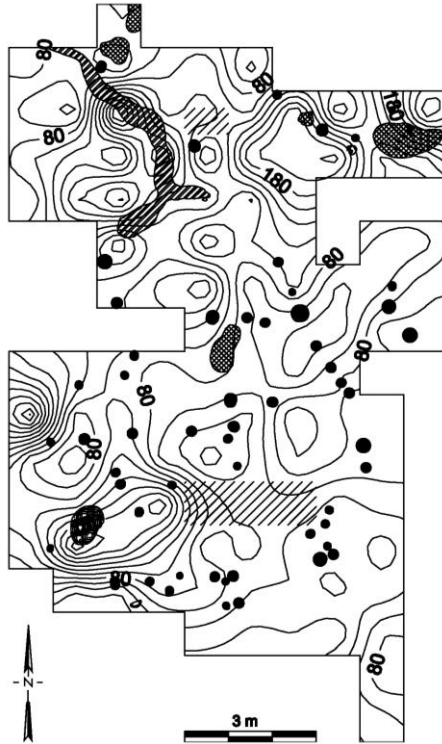


Figure 3.23. Household 4, Recent period sherd density.

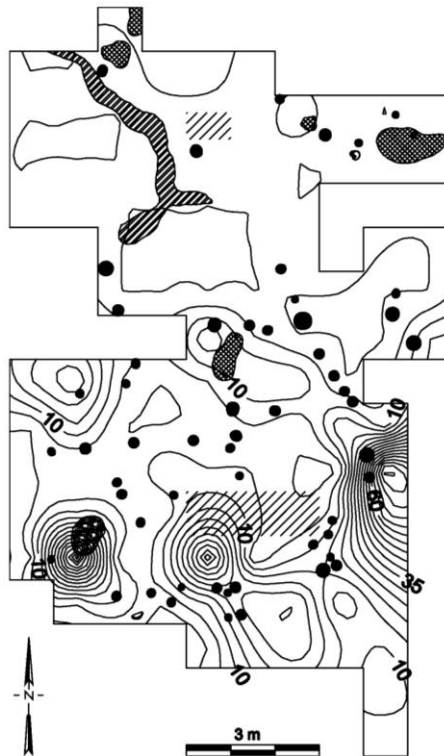


Figure 3.24. Household 4, Formative and Regional Classic period sherd density.

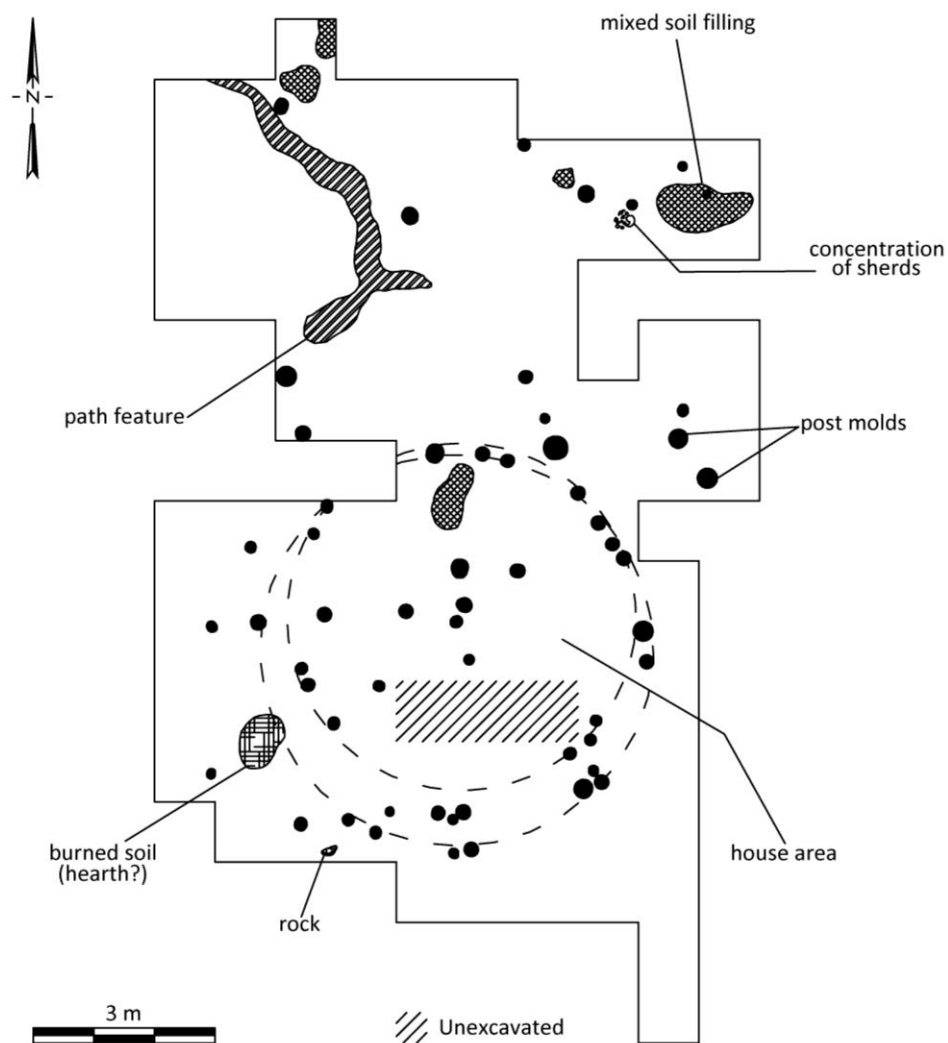


Figure 3.25. Household 4, features.

3.5 HOUSEHOLD 5

Household 5 is placed at 1751 m.a.s.l. on the top of a hill separated 150 meters to the south-west of Mesita A from the Archaeological Park of San Agustín. Like Households 4 and 6 this is located at the left side of the path that links Mesitas A and C and to the right side of the

boundary of the Park. The vegetation is of a secondary forest, with a very dense area of bushes and weeds. The excavations of this household are between the Households 11 and 12 from Figure 2.1. This area corresponds to collection lot VG 012 from the SA 003 site from the regional systematic survey; placed around 22 meters to the north of excavation unit ME 102 from the intensive survey program; located adjacent to shovel probes 2580 to 2583 from the transects program and 30 meters farther to shovel probes 4945 and 4946 from the grids program. It is located within Grids 144 and 145 from the magnetometer survey (Figure 3.26). Magnetometer data provided by Grids 141 and 145 shows a large zone of high intensity magnetic values between -2.7 and -21.7 nT (blue color in Figure 3.26), and to the south of Grid 144 is also denoted a smaller zone of high values of magnetic intensity ranging from 2.7 to and 60 nT (red color in Figure 3.26). We thought these were the result of a possible midden area and this is why a series of excavations were conducted in the middle (green color in Figure 3.26). Unfortunately, the strong anomalies in Grid 144 were the result of contemporary activity that destroyed substantial portions of the archaeological deposits.

This household covered 45 m² of excavation, distributed into 45 excavation units (Figure 3.27). The units were excavated thinking they contained more post molds and other features related to the post molds found in unit FR 321, but the total findings consisted of just two intentional dirt fillings to the north in units FR 341 and FR 322-325; the old structure was likely located towards the south of unit FR 321 (Figure 3.30) where the zone was heavily damaged by contemporary action. That site was composed of one stratum of dark brown soil containing the archaeological material and another stratum of yellowish brown clay soil culturally sterile (Figure 3.28). Archaeological deposits were distributed into two conventional stratigraphic

levels (A and B), emerging no deeper than 18 cm. Barranquilla Buff ceramics comprised 100% of the sample, this is why no lithic item was discarded from any unit to run the lithic analysis. Samples of ceramic vessels contained decorated and undecorated sherds, one spindle whorl and one bottle, and jars and bowls (Table 3.1). The chipped stone assemblages included cores, debitage and scrapers and knives manufactured from different raw materials (Tables 3.2 and 3.3). The sample of ground stone tools was composed of a single axe (Table 3.4). The greatest densities of Barranquilla ceramics were placed in unit FR 227 and associated with the two unique post molds found. The other area of great density was located in unit FR 331 and could be related to the remnants of a midden illustrated in the magnetic maps through the blue zone of high intensity (Figures 3.29). The two post molds were found within the limits of the dark brown soil and the yellowish clay at 18 cm (Figures 3.28 and 3.30); they were 14 and 16 cm in diameter and at depths of 20 cm, separated from each other by 60 cm. The form of the structure and its dimensions are unknown, but no doubt belonged to the Recent period.

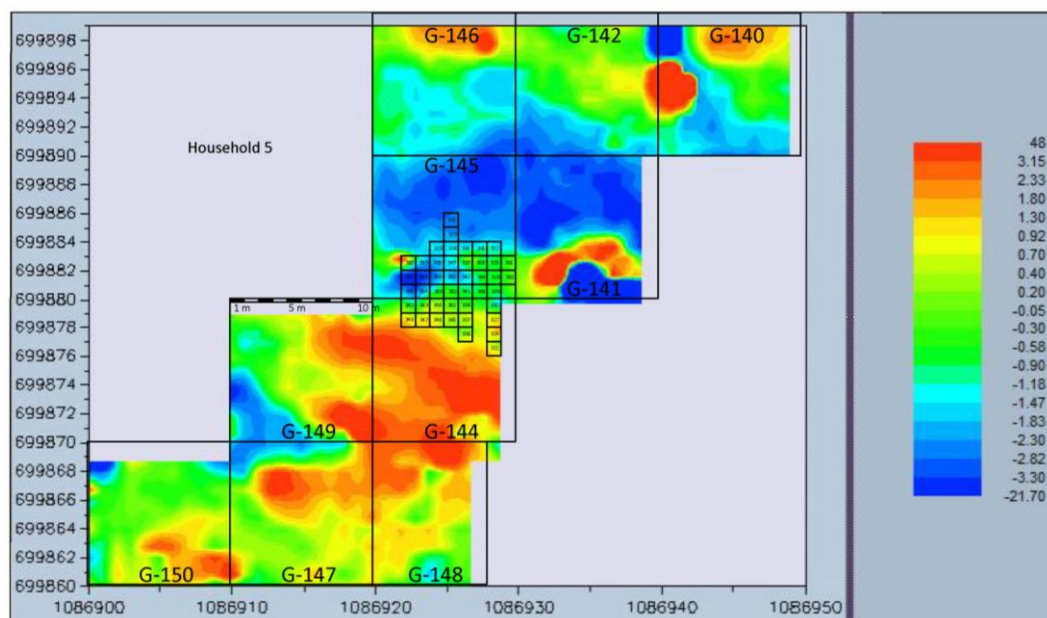


Figure 3.26. Magnetometer survey, Grids 140 to 142 and 144 to 150, Household 5.

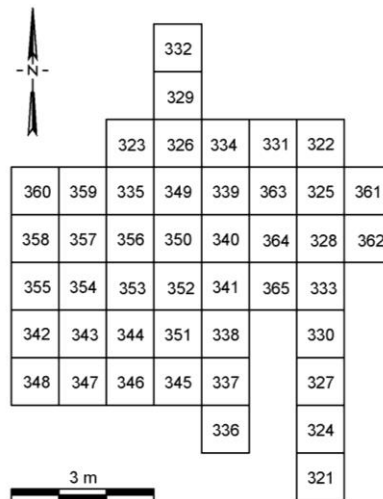


Figure 3.27. Household 5, units of excavation.

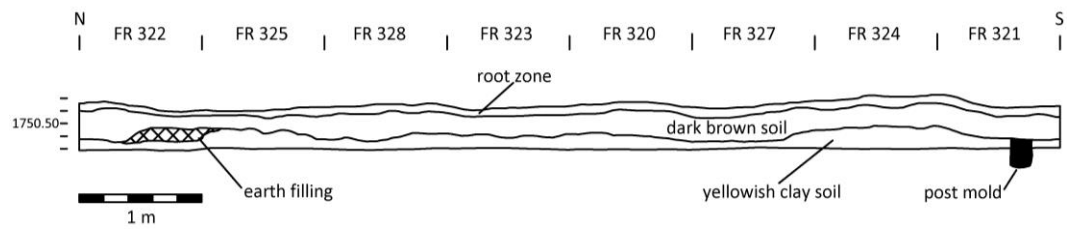


Figure 3.28. Household 5, profile.

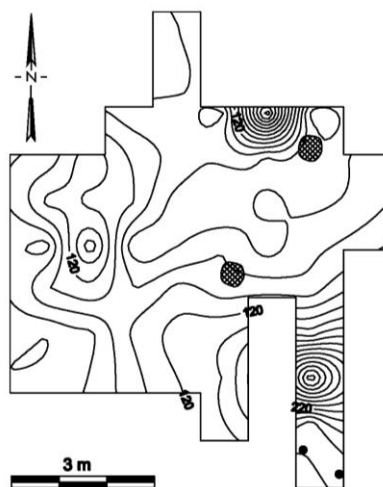


Figure 3.29. Household 5, Recent period sherd density.

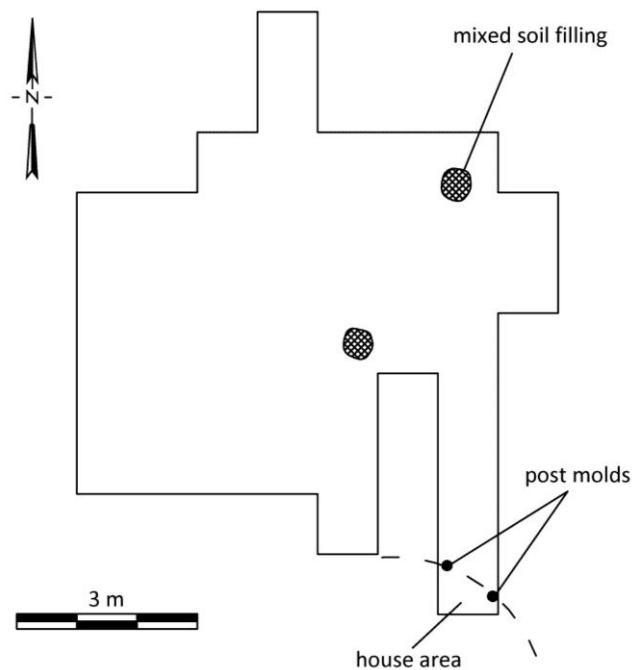


Figure 3.30. Household 5, features.

3.6 HOUSEHOLD 6

Household 6 is at 1749 m.a.s.l. on the top of a gentle hill distanced 80 meters, in a north-east direction, from Mesita C from the Archaeological Park of San Agustín. This area is covered by a secondary forest alternated with grassland and wetlands, located on the left side of the trail that connects Mesitas A and C and to the right side of mesh which delimits the boundary of the Park. This household corresponds to Household 6 from the initial 98 households detected on the basis of previous research (Figure 2.1). These excavations belong to the area covered by collection lot VG 391 from the SA 058 site from the regional systematic survey; it is 17 meters to the north of excavation unit ME 94 from the intensive survey program;

located 20 meters south-east of shovel probes 2609 and 2610 from the transects program and 35 meters in south-east direction to shovel probes 5006 and 5007 from the grids program. It is located within Grids 166, 167, 170, 171 and 176 from the magnetometer survey (Figure 3.31). These excavations were located in the middle of an area of high magnetic intensity likely the result of midden areas in Grids 166, 167, 168 and 170 showing positive values between 3.30 and 10 nT (red color in Figure 3.31) and in Grids 168 and 172 having negative values from -3.83 to -8.40 nT (blue color in Figure 3.31).

This household was the result of 60 m² of excavation, aggregated into 60 units (Figure 3.32). In these excavations two strata were recognized, one of a black soil with cultural materials and a sterile layer of yellowish clay soil (Figure 3.33). Archaeological deposits were mainly distributed into one to three conventional stratigraphic levels, fluctuating between 12 cm and 28 cm; then it became sterile soil. Units FR 393, FR 396, FR 399 and FR 402 were separated by five meters from the main group of units and intended to recover material coming from the nearby midden zone (Figure 3.34). The sample of Barranquilla Buff ceramics integrated 96%; the other 4% embodied materials from the Regional Classic and Formative periods. The Barranquilla vessel shapes did not include cups and tripod legs, and this was the only one which lacked spindle whorls, while decorated and undecorated objects were present (Table 3.1). These materials were accompanied by a small sample of cores, debitage and chipped stone tools made in different kinds of raw materials (Tables 3.2 and 3.3). The presence of ground stone tools indicates there were a relatively large amount of pounders (Table 3.4). The lithic materials coming from units FR 391, FR 397, FR 400 and FR 421 were discarded from the lithic analysis for having less than 80% of Barranquilla materials. A density contour's plot

illustrating the distribution of Barranquilla Buff items shows four main elevated concentrations of materials located toward the flanks of the excavations: one towards the south-eastern flank of the excavation in units FR 372, FR 376, FR 404, FR 405 and FR 427; another towards the north-western flanks in units FR 418 and FR 431; a third one towards the middle in unit FR 395; and the last one focused in units FR393, FR 396, FR 399 and FR 402 (Figures 3.34 and 3.35). At first, these concentrations were in consonance with the distribution of the high magnetic intensive zones that surround the excavations and which are delineating middens' areas. However, on examination, these areas of high densities of material were in consonance with the distribution of the group of post molds which were delimiting the partial area of an ancient house likely associated to the Recent period. The density maps for Classic and Formative materials are the result of low frequencies of material observed in the uppermost portion of the excavations in units FR 391, FR 397 and FR 418 and towards the southern portion in unit FR 385. It is possible that such material had been moved out when people of the Recent period leveled the surface to build the house; nevertheless, the possibility cannot be ruled out that intentional dirt fillings, like the one observed in unit FR 385, and some post molds did belong to a precedent period.

Almost all the features were found within the limits of the black soil and the yellow clay, at depths ranging from 12 cm to 28 cm, with the exception of a sherds accumulation in unit FR 404 that emerged since level B, and a burned soil in unit FR 391 that emerged since level A (Figures 3.33 and 3.36). The majority of the features correspond to post holes (n= 37), some of them delineate a circular area of a house from the Recent period (dashed line in Figure 3.36), that cannot be excavated toward the western flank because of the presence of larger trees.

That circular structure would have had a diameter between 6.2 and 6.4 m and covered an area between 30 and 34 m² (Table 3.5); as was observed in other cases, it is possible that post molds placed outside this perimeter have been part of a larger house's structure. These post molds had diameters between 15 and 20 cm, depths between 18 and 28 cm and were separated from each other by distances between 10 and 100 cm; a few cases of larger ones found in units FR 374-397, FR 412-413, FR 380 and FR 390 were 24 cm to 26 cm in diameter and 10 cm to 12 cm in depth. Post molds located within the inner circumference may have worked as supports for the roof such as the one from unit FR 422. They also may have served as above ground storage facilities or as internal divisions like those present in units FR 410 and FR 386; the presence of a gap between the post molds from units FR 388 and FR 401 where the densities of Barranquilla materials were low indicates it could also have been functioning as a doorway area (Figure 3.36). In the sterile soil of unit FR 383 a crescent-shaped feature was found, quite similar to the one found in Household 1 that did not contain any type of archaeological materials either. Finally, towards the north side of the excavations, in unit FR 391, a metate associated to the remains of a burned soil was found which could have been used as a hearth.

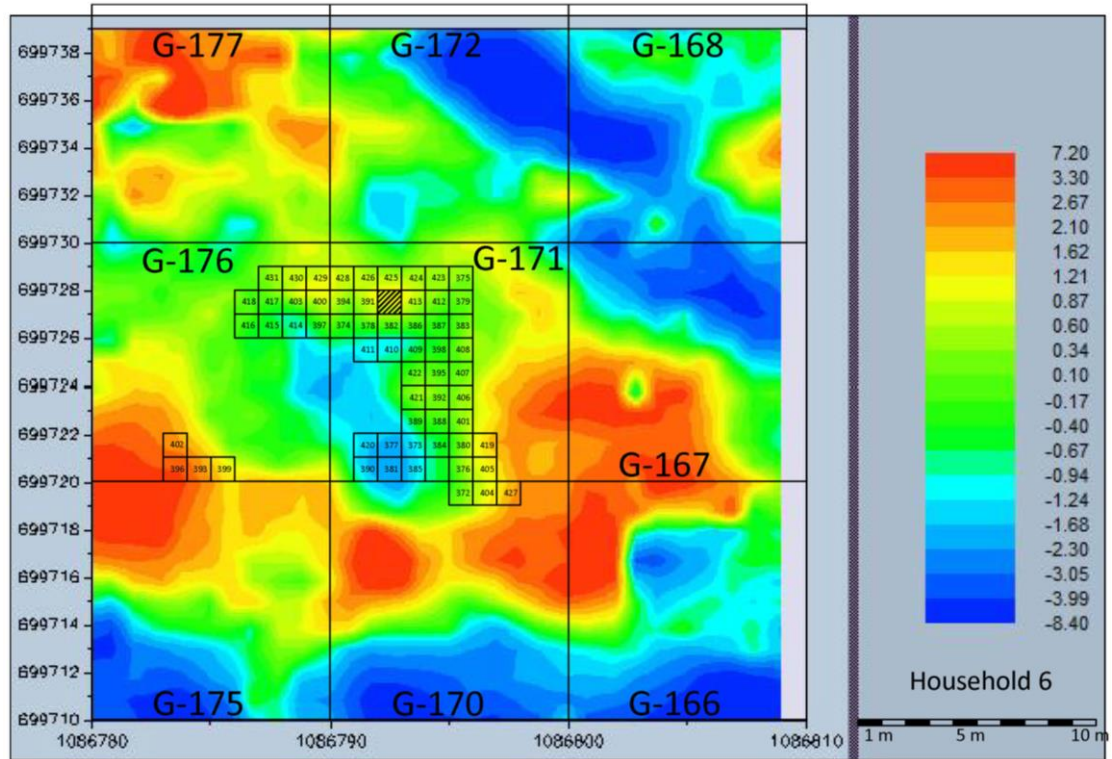


Figure 3.31. Magnetometer survey, Grids 166 to 198, 170 to 172, and 175 to 177, Household 6.

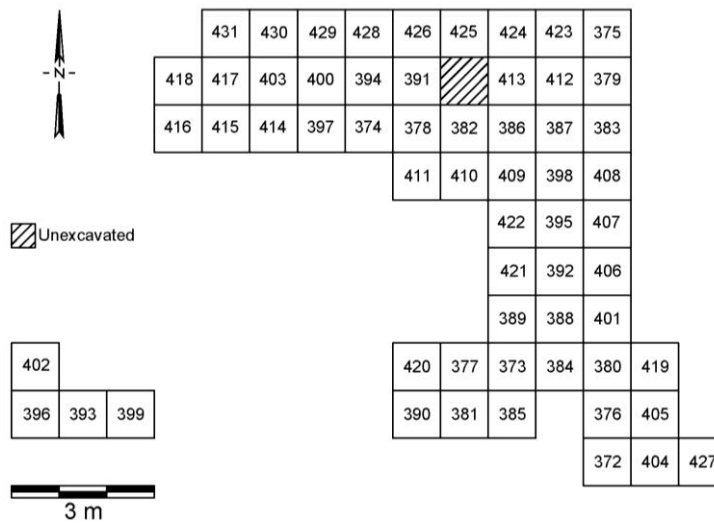


Figure 3.32. Household 6, units of excavation.

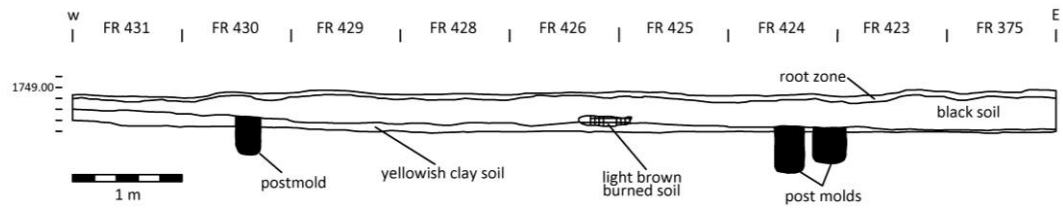


Figure 3.33. Household 6, profile.

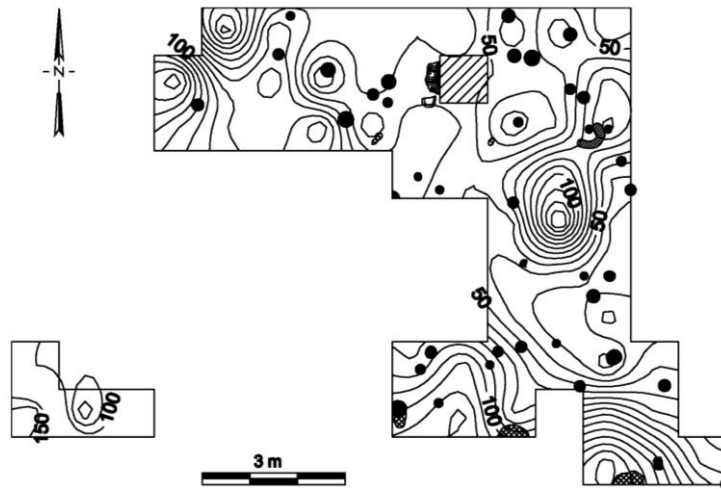


Figure 3.34. Household 6, Recent period sherd density.

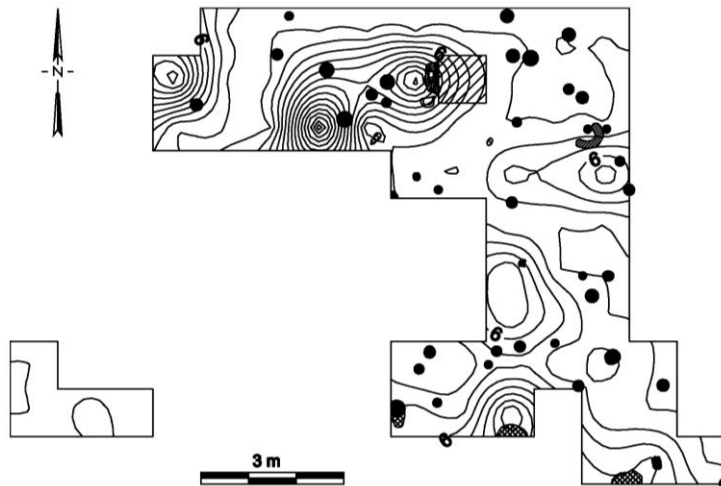


Figure 3.35. Household 6, Formative and Regional Classic period sherd density.

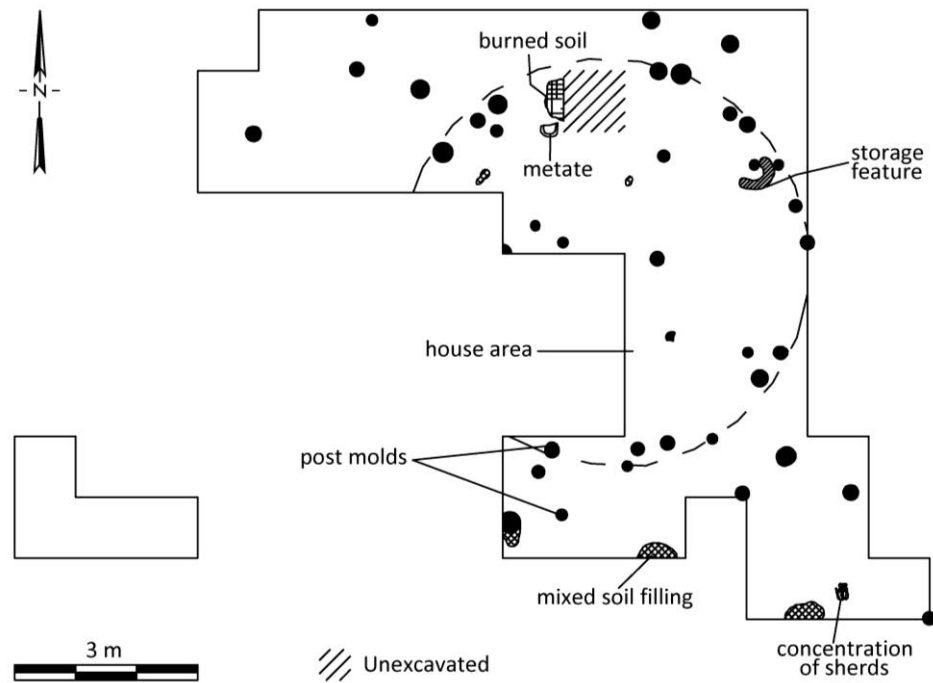


Figure 3.36. Household 6, features.

3.7 HOUSEHOLD 7

The excavations at Household 7 are located 14 meters west of Household 1. This household is also located at 1765 m.a.s.l. of altitude and shows the same topographic and vegetation characteristics as Household 1. Household 7 is 94 m north of Household 41 defined on the basis of previous research (Figure 2.1). This corresponds to an area covered by collection lot VG 502 from the SA 022 site from the regional systematic survey; it is located about 28 meters to the south-west of excavation unit ME 214 from the intensive survey program; it is at a distance of 45 meters to the left-side of shovel probes 1725 and 1726 from the transects program, and 20 meters to the left side of shovel probes 4264 and 4265 from the grids

program; and, it is placed in Grids 109, 110, 113 and 114 from the magnetometer survey (Figure 3.37). This area was chosen for carrying out excavations in part to stay on the opposite side of the red zone of high intensity magnetic values in Grids 115 and 116 (Figure 3.37).

Household 7 covered 48 m² of excavation, clustered into 48 units. Excavations started in units FR 440, FR 441 and FR 442 but because a tomb was found in unit FR 442 I decided to move the excavations three meters to the west (Figure 3.38). The tomb was a very modest one, of shaft and well-shaped, with a single step to the well and it was not very deep (130 cm). An accumulation of rocks and ground stone tools garbage (portions of manos and metates) were covering the well, it contained a single vessel of Barranquilla Buff jar with the rim and the neck covered in red positive painting with some little flakes of quartz as offerings. This group of excavations was characterized by two natural strata, one of a black soil containing the majority of archeological remains, and a second one of yellowish-brown clay that was culturally sterile (Figure 3.39). Archaeological deposits were no deeper than 26 cm, distributed mainly in three conventional stratigraphic levels from A to C, the majority of the Recent materials were found on levels A and B, and diminished considerably in level C; the sterile soil in units FR 537, FR 562, FR 570, FR 571, FR 572, FR 574, FR 576, FR 579, FR 580, FR 581, FR 583, FR 584, FR 589, and FR 590 oscillated between 18 and 22 cm. Unit FR 440 covered four levels of excavation, to level D; because of the presence of more dense accumulation of materials, the sterile soil started at 45 cm depth. The sample of Barranquilla Buff ceramics represented 86%; the 14% remaining corresponded to Regional Classic and Formative periods' materials. The Barranquilla sample was composed of vessels where no plates, bottles nor tripod legs were found, decorated and undecorated objects and one spindle whorl were also part of the sample (Table 3.1). Chipped

stone tools composed of scrapers, knives, notched scrapers and *raederas* appeared in various types of raw materials besides cores and debitage and were part of the lithic assemblages, and a few ground stone tools were added to the list of the domestic assemblage (Tables 3.2, 3.3 and 3.4). Little samples of charcoal dispersed among several units were taken. In this household the discarded chipped stone materials came from the following 11 units that have less than 80% of Barranquilla ceramics: FR 557, FR 558, FR 559, FR 560, FR 567, FR 568, FR 569, FR 583, FR 584, FR 586 and FR 590. A contour plot illustrates four zones of higher densities of Barranquilla Buff ceramics, two towards the south side of the excavations clustered in units FR 440 to 442 and in units FR 537, FR 539 and FR 541, a third zone is visible in the central west portion in unit FR 571, and a fourth one is located in the upper most side of units FR 579 and FR 581. The densities of material from other periods were located in three zones, one in the central-west section of the excavations centered in units FR 558 and FR 584, another in southern units FR 543 and FR 549, and finally in the deeper deposits to the south-east in units FR 440 to 442. Interestingly, the distribution of Recent materials densities are in consonance with the distribution of a greater group of post molds placed towards the sides of the overall excavation, the densities of materials from other periods raise the possibility they are related to the intentional earth filling and the path feature (Figures 3.40 and 3.41).

The majority of features were located at depths between 18 and 26 cm in the transition of black soil to the deepest yellowish-brown sterile stratum; however, the small concentrations of rocks in unit FR 549, the rocks from the hearth in units FR 575-567, and the yellow patch of clayed soil from units FR 567-581-588-589 which was the product of a pre-Hispanic event of a tomb opening (not excavated) noticed in the corner of unit FR 589, were exposed after the

previous layer of black soil (Figures 3.39 and 3.42). Features in this household correspond to 45 post holes; most of them delineating a circular area of an ancient house from the Recent period (dashed line in Figure 3.42), surely rearranged several times during that time. It is also possible that some of them could be part of older structures from the Classic or even from the Formative periods; they are delimiting the perimeter of a structure having a diameter between 6.8 and 7.3 m and covering an area between 43 and 50 m² (Table 3.5). Post holes have diameters between 16 and 20 cm and depths between 18 and 30 cm, although in units FR 541, FR 577 and FR 586-587 some were 30 to 35 cm wide and reached 12 to 15 cm in depth. These post holes show usual distances of between 80 to 150 cm, but some are separated by 15 to 30 cm. The shallow patch of mixed soil filling found in units FR 574-558-556-584 may have been part of a previous period's events. A doorway area was located in the southernmost portion of the excavations in units FR 549 and FR 559, but that feature could be part of a previous period episode; it corresponds to a magnetic gradient between -1.20 to -1.90 nT delimited in Figure 3.37 in a pale blue color between the two larger areas of high magnetic intensities. It is also likely that the doorway area to the Recent house was in the northernmost area of excavation in units FR 564 and FR 579, where some flat rocks could have been acting as steps. Other features consisted of small accumulations of rocks in units FR 555 and FR 557, and the presence of lithic tools made of chert and obsidian coming from unit FR 545, just nearby the great density of Barranquilla sherds from unit FR 541 (Figure 3.42).

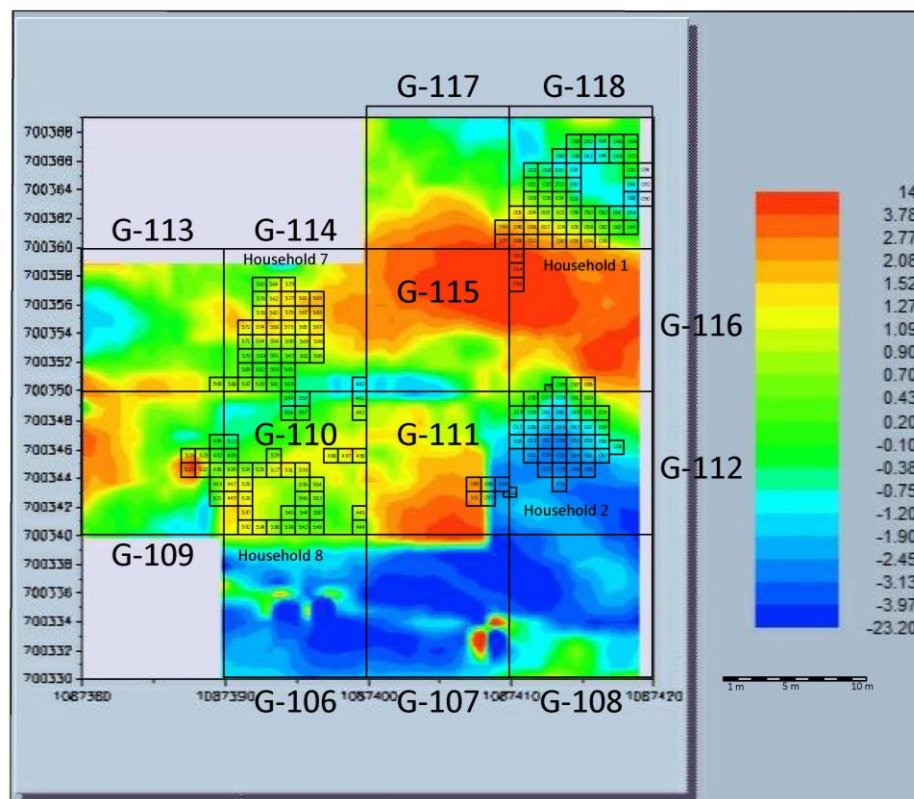


Figure 3.37. Magnetometer survey, Grids 106 to 118. Household 7 is on the top left in Grid 114.

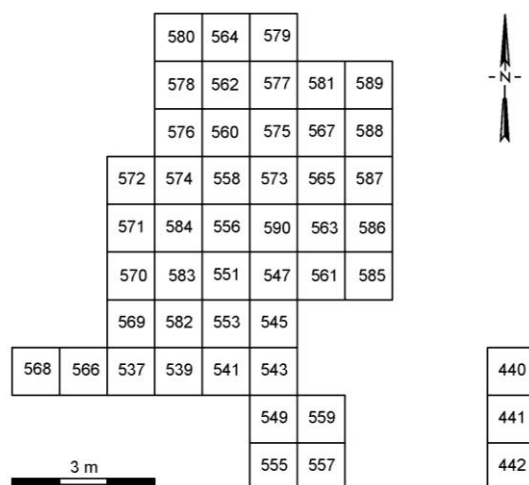


Figure 3.38. Household 7, units of excavation.

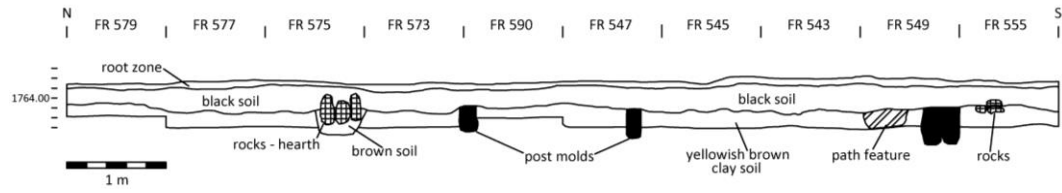


Figure 3.39. Household 7, profile.

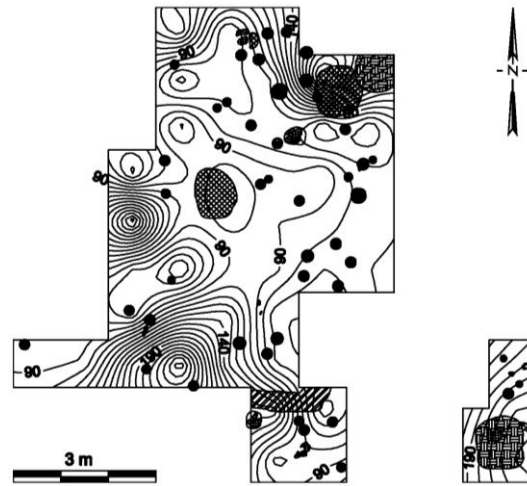


Figure 3.40. Household 7, Recent period sherd density.

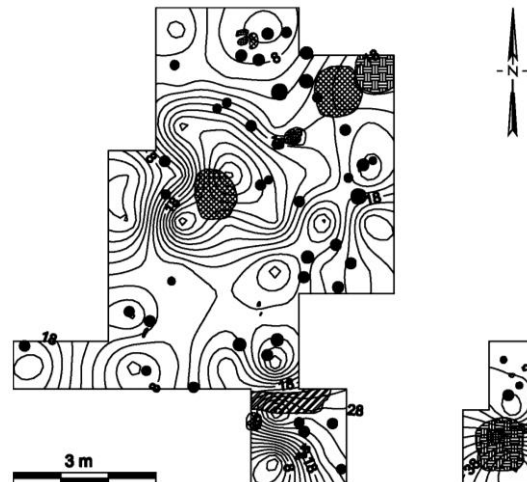


Figure 3.41. Household 7, Formative and Regional Classic period sherd density.

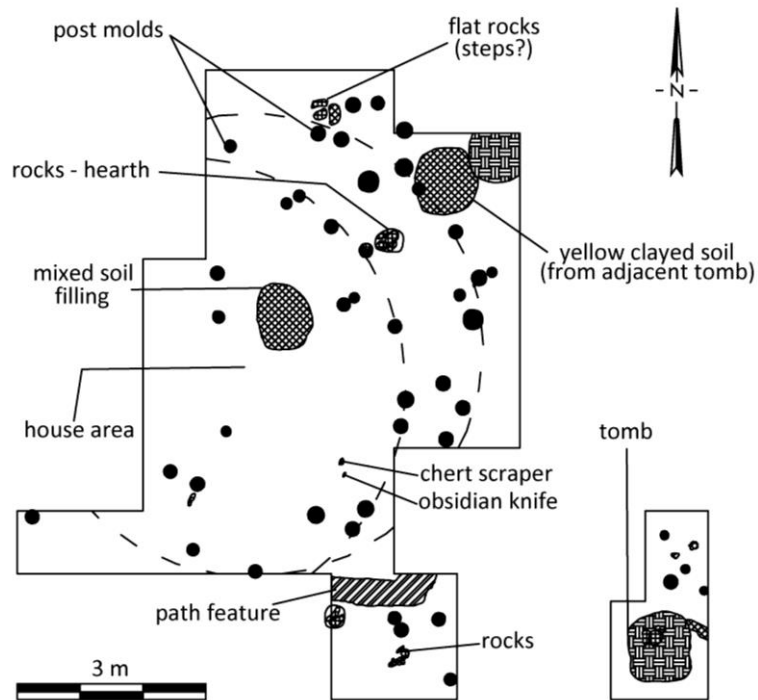


Figure 3.42. Household 7, features.

3.8 HOUSEHOLD 8

Household 8's excavations were performed 10 meters west of Household 2. Like Households 1, 2 and 7 this one is also placed at 1765 m.a.s.l, and shares with them similar conditions of topography and vegetation. This household is 85 m north of Household 41 as defined on the basis of previous research (Figure 2.1). This area belongs to collection lot VG 502 from the SA 022 site from the regional systematic survey; it is 30 meters south-west from excavation unit ME 214 from the intensive survey program; located about 40 meters to the left of shovel probes 1724 and 1725 from the transects program and 20 meters to the left of shovel probes 4262 and 4263 from the grids program; it corresponds to Grids 106, 109 and 110 from

the magnetometer survey (Figure 3.43), arranged alongside Grids 106, 107, 108, 111 and 112 which expose a high intensity zone of magnetic values related to dense areas of midden deposits and tombs (the dark blue color zone in Figure 3.43). For this reason, the excavations of Household 8 were done toward the adjacent central-west side of that high intensity zone (Figure 3.43).

This household unit covered 41 m², distributed into 41 units of excavation (Figure 3.44). Eight units located to the north of FR 534, FR 536 and FR 540 could not be excavated due to the presence of big trees. Excavation started in two areas marked by units FR 432 and FR 433 on the left side, and units FR 436 to FR 438 on the upper right side. This latter group contained large amounts of materials coming from the even larger and denser area of middens located nearby and some tombs did arise at the end in levels C and D; for this reason, excavation was not completed to that side. Soon after, in units FR 444 and FR 445, substantial amounts of material coming from the nearby dense midden area were recovered until level D. In the former, post holes and a big stone slab surrounded by pieces of chipped stone rocks of andesite material were found in the initial units, which made this a more promising area for enlarging the excavations (Figure 3.48). Two natural strata were recognized in these excavations, as usual one was of a black soil and the other was of a yellowish-brown clay soil (Figure 3.45); the black soil with archaeological deposits oscillated from between 20 to 32 cm; the yellow sterile soil came after this. Archaeological deposits were divided into three conventional stratigraphic levels (A to C), although in units FR 432, FR 436, FR 437, FR 444, FR 445, FR 520a and FR 523a it was necessary to dig a fourth level D. Barranquilla Buff ceramics were the equivalent of 91% of the whole sample, the 9% remaining was represented by materials of the previous Regional

Classic and Formative periods. The ceramics' inventories of Barranquilla items came from all levels and corresponded to two spindle whorls, decorated and undecorated sherds, and several types of vessels but no plates and no handles (Table 3.1). The chipped stone inventories of different types of rocks included cores, lithic debitage, and several tools, but also, multifunctional artifacts and hammer stones; and, a good number of *manos* stands from the sample of ground stone tools (Tables 3.2, 3.3 and 3.4). The lithic objects came from six units, FR 526, FR 530, FR 533, FR 535, FR 544 and FR 546, and were not used in the lithic tools analysis as the seclusion principle of discarding the materials coming from units having less than 80% of Barranquilla sherds was invoked.

The greatest densities of Barranquilla Buff ceramics observable toward the flanks of the overall excavation in units FR 444 and FR 445, FR 436 to FR 438, and FR 520 correspond to the large group of post molds, possibly delineating some house perimeters not easily discernible (dashed lines in Figure 3.48). Instead, the higher concentration of ceramic materials from other periods are mainly concentrated in the eastern flanks of the excavation in units FR 444 and FR 445, clearly associated with the remains left by the midden deposits, and in the surroundings of FR 546 that may be the result of dirt moving from older deposits by Recent people when making the tombs that are present in units FR 552 and FR 554 (Figures 3.46 and 3.47). In this household, only the intentionally mixed soil fillings found in units FR 435, in FR 523-523a-520-520a, in FR 439-524 and in FR 526 were noticed within the limits of the black and the yellowish brown soils. The other features that correspond to a small midden in units FR 520 and 520a, the stone slab from units FR 432-433-435-439, the small accumulations of sherds in units FR 449 and FR 521, and three jars from units FR 532 and FR 534 started to appear in the black soil in

layer B. The ceramics' materials and the three jars coming from these features were exclusively from the Recent period, the chipped and ground stone tools coming from FR 520 and FR 520a feature can be assumed to belong to the Recent period as well. All this supports the idea of the post molds arrangements as being part of a Recent period house structure (Figures 3.45 and 3.48). It is also possible to conclude, because of the great density of Barranquilla material associated with those units, that in units FR 432, FR 433, FR435 and FR 439 some activities of tool making during the Recent period were carried out. In this case, the flat stone slab may have been used as a seat for a person to use as they manufactured tools using andesite rocks.

This group of excavations provided evidence of 29 post molds possibly shaping a Recent period circular with 5.4 and 5.7 m in diameter and having an area of 23 to 26 m² (Table 3.5); they were separated from each other by 30 cm to 130 cm and displayed depths from 15 to 28 cm. They have diameters between 16 and 20 cm and depths between 18 and 28 cm, with the exception of some present in units FR 439-447 and FR 433 that have larger sizes than 25 cm and no more than 15 cm in depth.

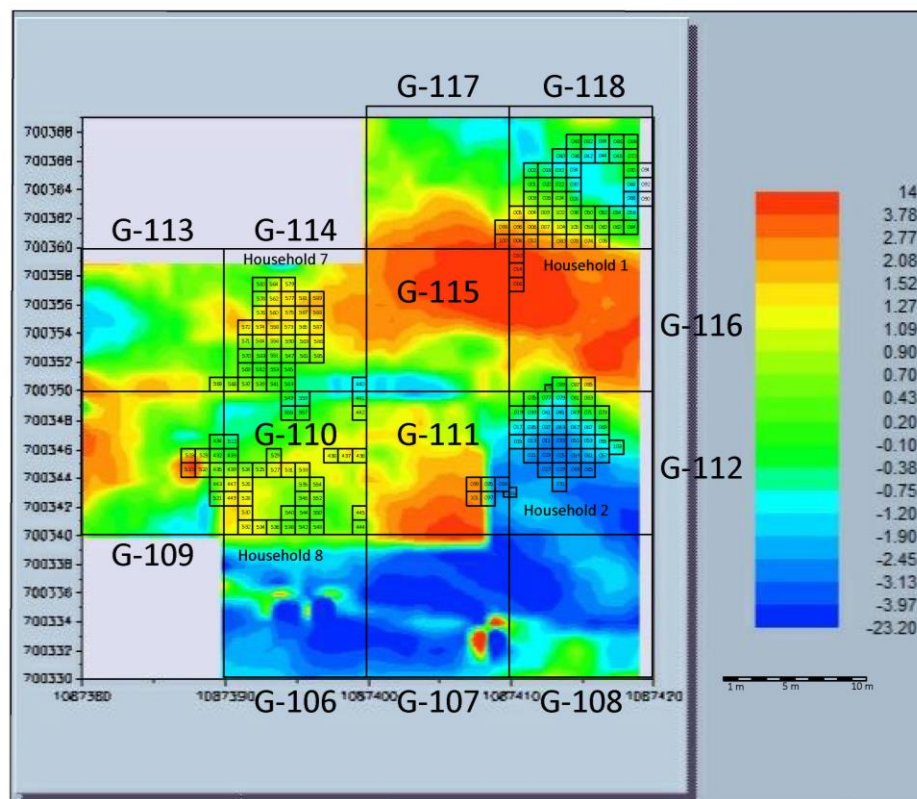


Figure 3.43. Magnetometer survey, Grids 106 to 118. Household 8 is on the bottom left in Grid 110.

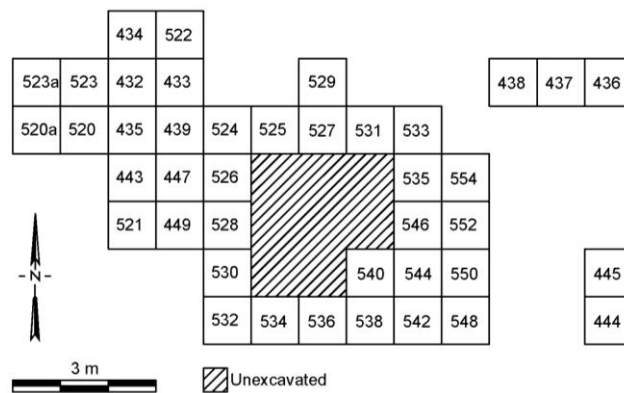


Figure 3.44. Household 8, units of excavation.

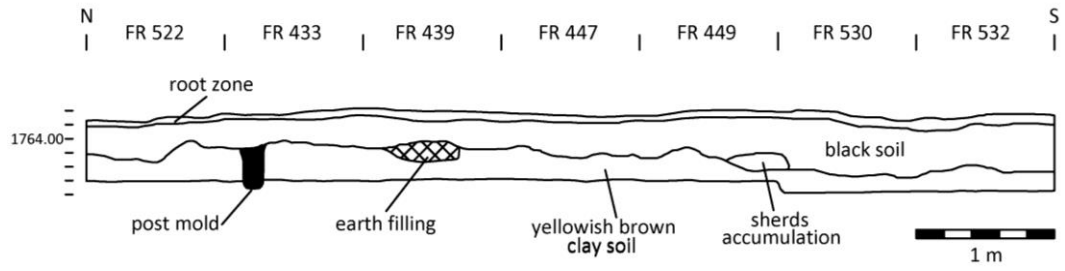


Figure 3.45. Household 8, profile.

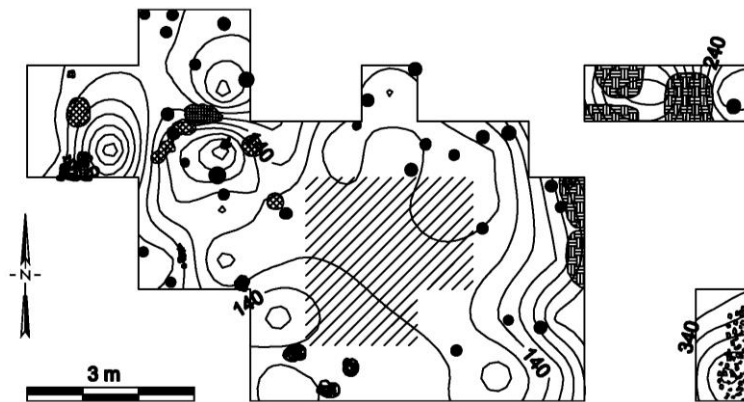


Figure 3.46. Household 8, Recent period sherd density.

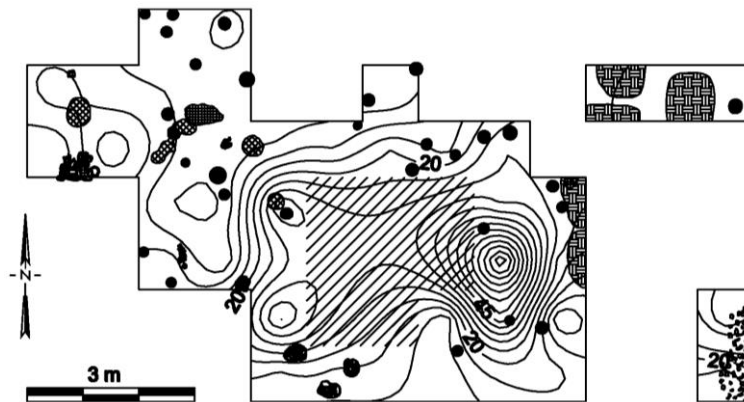


Figure 3.47. Household 8, Formative and Regional Classic period sherd density.

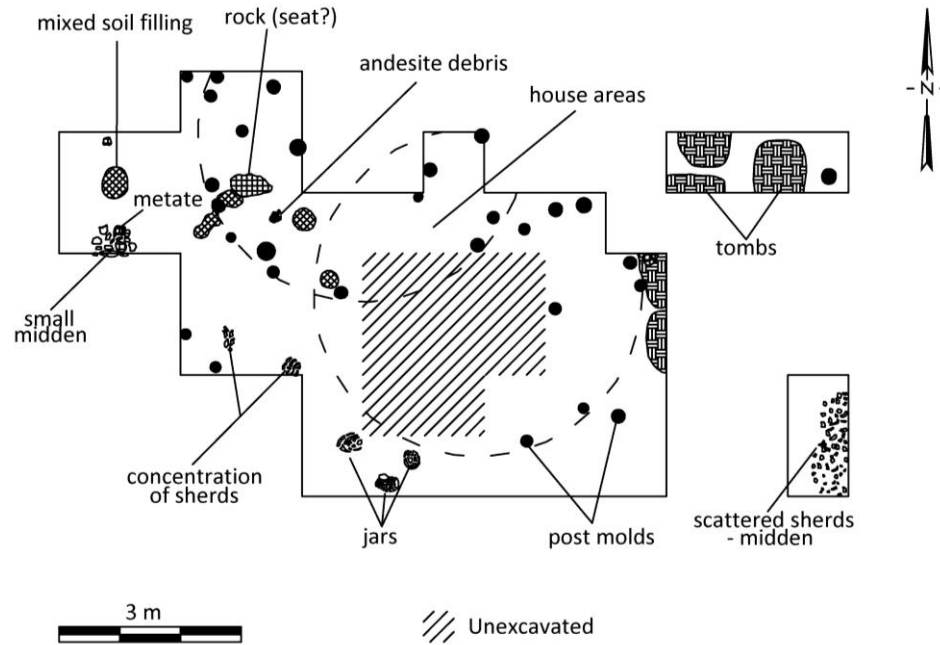


Figure 3.48. Household 8, features.

3.9 HOUSEHOLD 9

Household 9 is at 1765 m.a.s.l., part of the flat area 30 meters south-west from Household 8. It corresponds to an area of heavily intervened secondary forest vegetation. Close to the excavations ditches and raised fields of contemporary origin were found. The group of excavations of this household is 65 m north-west of Household 41 as defined on the basis of previous research (Figure 2.1). This area is between collection lots VG 139 and VG 174 from the SA 022 and SA 030 sites respectively, from the regional systematic survey; placed 40 meters west of excavation unit ME 198 from the intensive survey program; located 30 meters to the right side of shovel probes 1494 to 1497 from the transects program; and 25 meters to the left side of the shovel probes 4272 and 4273 from the grids program. It corresponds to Grids 085,

093, 096 and 097 from the magnetometer survey (Figure 3.49). The magnetic data used to locate the Household 9 area of excavations came from Grids 094, 095 (both contiguous to the left side of Grid 096) and 096 that indicates areas of midden deposits by a high intensity zone of magnetic values between -2 and -14.7 nT (blue color in Figure 3.49), and a high intensity area with magnetic values ranging from 1.48 to 29 nT to the bottom right of Grid 085 and to the top right of Grid 096 (red color in Figure 3.49). The straight line exposing high intensity values (in blue color) at the bottom of those grids corresponds to a contemporaneous ditch with accumulation of water.

Household 9 comprises 62 m² of excavations distributed into 63 units. A unit next to the south-east flank was not excavated because of the presence of a big tree (Figure 3.50). Throughout these units a common pattern was recognized of two layers of soil, the first one a dark brown color with cultural materials exposing next a yellowish clay that was culturally sterile (Figure 3.51). Archaeological materials were extracted from two to three conventional stratigraphic levels (levels A to C) reaching no more than 26 cm; the larger amount of Recent materials was extracted from levels A and B, with some occasionally coming from level C. Barranquilla Buff ceramics represent 84% of the whole sample; the other 16% belongs to the previous Regional Classic and Formative periods. The Barranquilla ceramics sample incorporated several vessel forms but no bottles and handles, decorated and undecorated objects and one spindle whorl (Table 3.1). Parts of the chipped stone assemblages were cores, debitage and tools made from various types of raw materials (Tables 3.2 and 3.3); the ground stone tools enclosed a small sample of polishing stones and an axe (Table 3.4). A good sample of charcoal was collected from units FR 468, 509, 511, 513, 515, 517 and 519 where a cooking

area represented by an intentionally mixed soil with substantial quantities of charcoal was discovered. To run the analysis of lithic proportions, the lithic materials from units (n= 13) FR 451, FR 455, FR 477, FR 487, FR 497, FR 504, FR 498, FR 506, FR 507, FR 508, FR 515, FR 518, and FR 519 were discarded because they consisted of less than 80% of Barranquilla material. The contour plot of Barranquilla Buff ceramics densities illustrates higher concentrations of materials towards the areas with post molds, with a special concentration in the southernmost flank of the excavations (Figures 3.52 and 3.53) making a good association with them to the Recent period. The densities of material from other periods were observed toward the uppermost portion of the excavations in units FR 487, FR 489 and FR 518 and to the south in units FR 514, FR 519, FR 468 and FR 469 where there were small accumulations of sherds. It is possible that materials from Classic and Formative times have been dragged by people from the Recent period when they leveled the surface to build the house, since the entire sample of post molds seems to belong to the Recent period.

A large number of features, including the 27 post molds, were found in the transition between the dark brown soil and the deepest yellowish clay stratum at depths between 18 and 26 cm, mainly in layer C (Figures 3.51 and 3.54); however, small concentrations of sherds from units FR 518 and 519 started to be visible in level B, the same happened with a pair of Barranquilla jars located in unit FR 518. The distribution of those post molds delineates a circular structure (dashed line in Figure 3.54) that did not show substantial rearrangements and pertained to the Recent period. It had a diameter between 5.8 and 6.3 m and covered an area between 29 and 35 m² (Table 3.5). Post molds presented diameters between 15 and 18 cm and depths between 16 and 28 cm, although in unit FR 514 a post mold appeared that was 23 cm in

diameter and 20 cm in depth. They were separated by distances of 50 to 80 cm; some of them may be lost in between the greater gaps visible to the north and east sections of the house, and it is also possible that the larger interval between the post of units FR 482 and FR 516 represents a doorway mark. The stratigraphy shows that the house floor was elevated 10 cm over the surface (Figures 3.51). Other features like shallow patches of intentionally mixed soil fillings found in units FR 504, FR 508, FR 518, FR 468-469-515 and FR 507 may have been prepared for leveling the house floor (Figure 3.54).

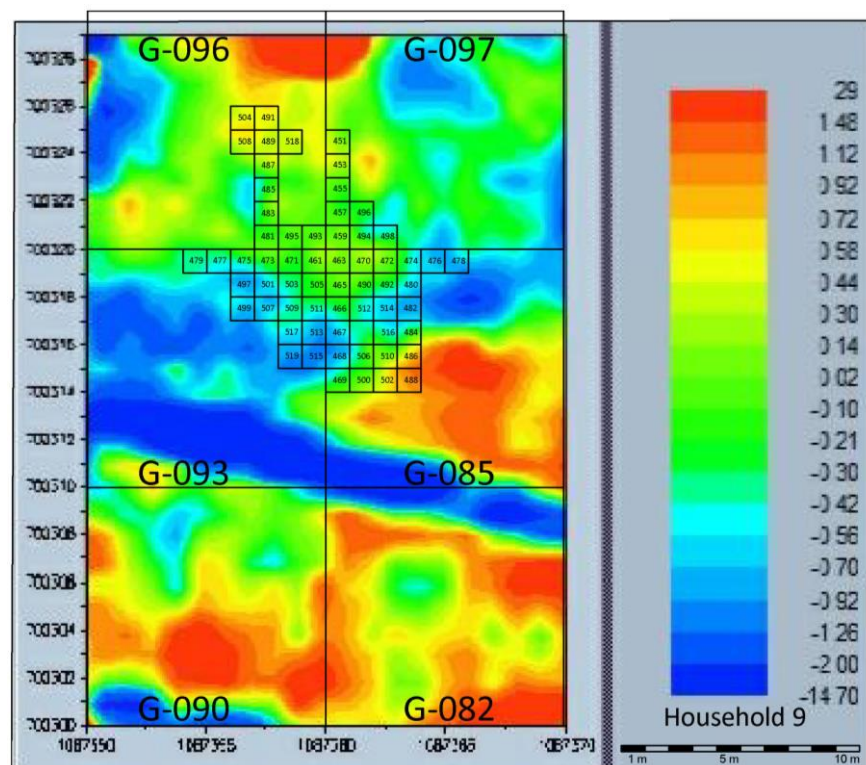


Figure 3.49. Magnetometer survey, Grids 082, 085, 090, 093, 096 and 097, Household 9.

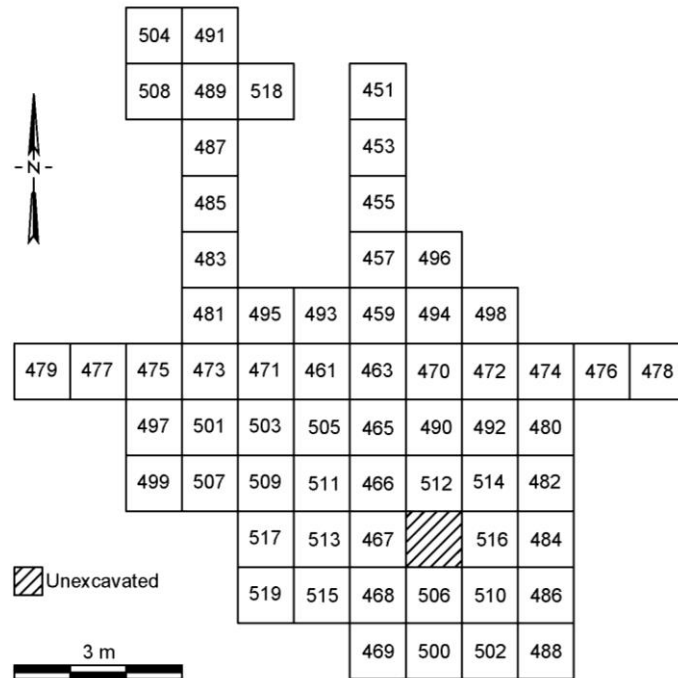


Figure 3.50. Household 9, units of excavation.

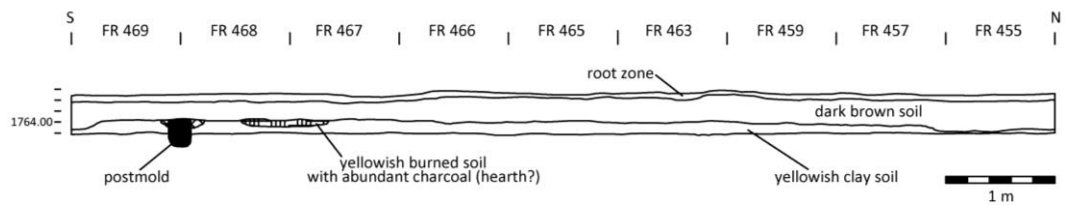


Figure 3.51. Household 9, profile.

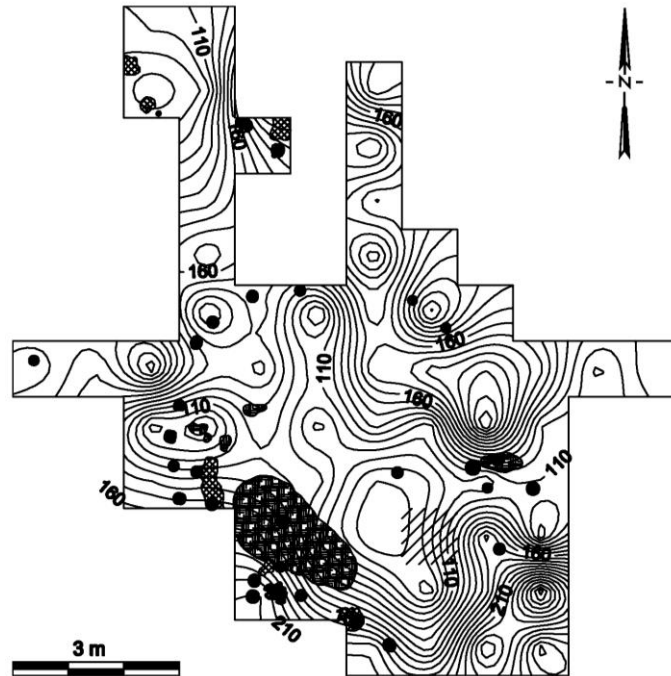


Figure 3.52. Household 9, Recent period sherd density.

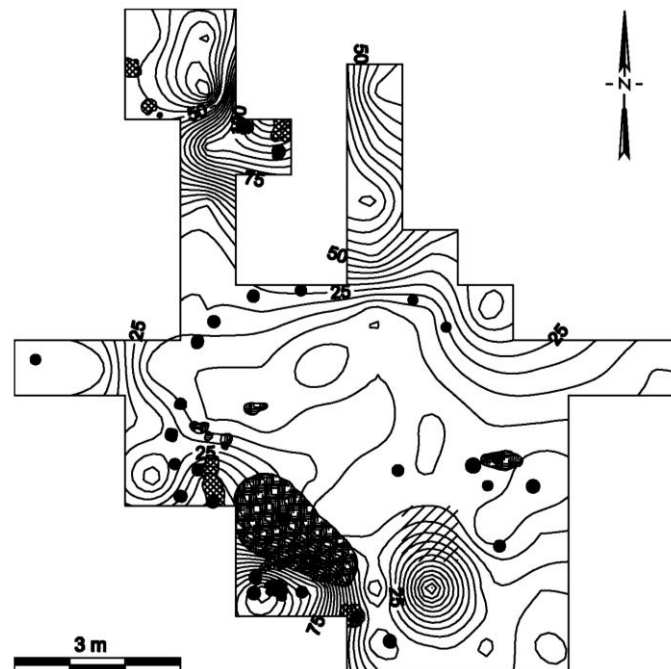


Figure 3.53. Household 9, Formative and Regional Classic period sherd density.

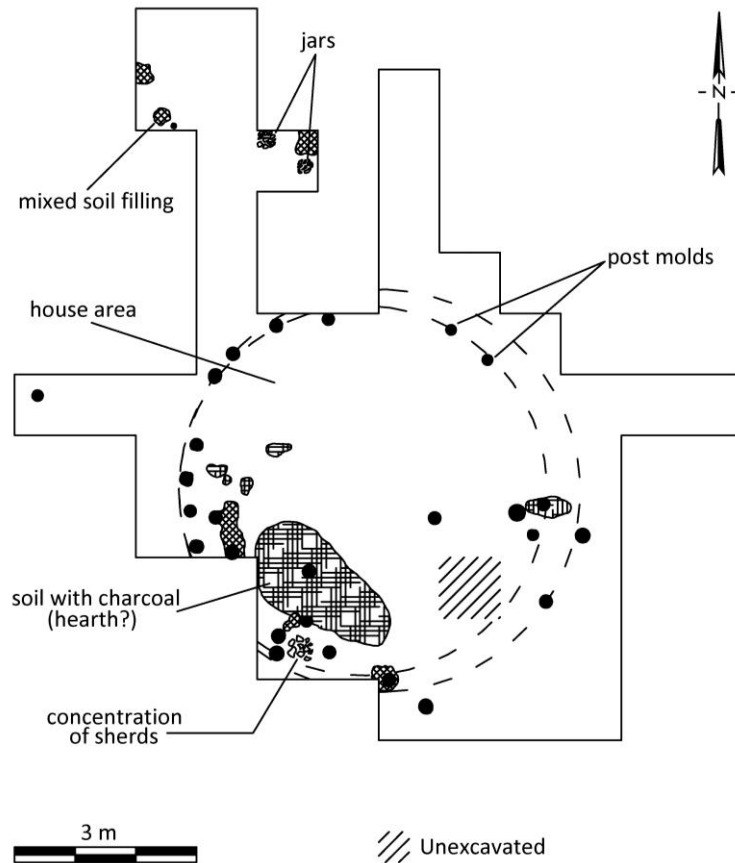


Figure 3.54. Household 9, features.

3.10 HOUSEHOLD 10

The excavations forming Household 10 were located at 1764 m.a.s.l. in a flat area of secondary forest vegetation covered by small bushes, trees and grasses right behind the soccer field of the Archaeological Park of San Agustín. It is at a distance of 60 meters south of Household 2. Household 10 is 40 m north-east of Household 41 as defined on the basis of previous research (Figure 2.1). It correspond to the collection lot VG 139 from SA 022 site from the regional systematic survey; it is 17 meters to the north-east of the excavation unit ME 206

from the intensive survey program; it is 3.5 meters to the left-side of shovel probes 1628 to 1631 from the transects program; and, it is between shovel probes 4285, 4286 and 4293 from the grids program; it corresponds to Grids 070, 072 and 073 from the magnetometer survey (Figure 3.55). The general area of excavations for Household 10 were located by observing the magnetic data from the grids located to the side of these; a high intensity zone of magnetic values from -1.95 to -12.10 nT (dark blue color in Figure 3.55) likely indicating areas of midden deposits is exposed in the bottom of Grids 075 and 076 (located just below Grids 072 and 073), and on the top of Grid 070 and in Grids 062 and 102 (on the right and up sides of Grid 070, respectively). The high intensity red zone to the right side in Grid 059 was taken with discretion because its extraordinary value, from 5.83 to 91 nT, was devastatingly affected by the strong magnetic field generated by the metal posts of the goal zone of the soccer field.

Household 10 covered 82.5 m² of excavation, distributed into 83 units (Figure 3.56). This site had two natural strata, one of dark brown soil containing archaeological materials and a yellowish clay of sterile soil. Archaeological deposits were mainly distributed into two conventional stratigraphic levels (A and B), but units FR 593, FR 610, FR 614, FR 635, FR 655 and FR 663 reached a third level C with deposits no deeper than 22 cm; followed by the yellow sterile soil (Figure 3.57). Barranquilla Buff ceramics makes up 97% of the overall sample; the other 3% pertains to the Regional Classic period. Barranquilla items included a small subsample of decorated sherds against an ample subsample of non-decorated ones, one spindle whorl and different types of vessels with no plates, no handles and no tripod legs (Table 3.1). The lithic assemblage is represented by cores, lithic debitage and chipped stone tools mainly consisting of knives, notched scrapers, and scrapers manufactured in different raw materials (Tables 3.2 and

3.3); ground stone tools included a proportionally large sample of polishing stones, *manos*, a *metates* and an axe, and two anvil fragments (Table 3.4). To develop the lithic analysis, the entire sample of objects were used given that no unit displayed less than 80% of Barranquilla ceramics. The contour map of Barranquilla Buff densities shows a greater concentration on the left side of the excavation circumscribed to units FR 598, FR 600, FR 602, FR 624, FR 670 and FR 672 where there was a heavy density midden of exclusively Barranquilla material associated to a big portion of a burned soil. This feature highly resembles the ethnographically documented areas of open fires for cooking pots (Longacre 1985). To the south side of that feature, a solid fragment of an anvil, an element also associated to the manufacture of pottery, was found; to the north side of this feature the magnetometer maps exposed a yellow to orange area with an intensity of 3.3 to 4.1 nT that may be the continuation of that feature (Figure 3.55). It is proposed then that this household could have been engaged in part-time activities of pottery production. Greater concentrations of Barranquilla material are visible toward the northern portion of the excavations close to a group of post molds and towards the south nearby the path feature; the relation between densities and post molds permitted one to think that the old structure delineated through these areas belonged to the Recent Period (dashed line in Figure 3.60). The Classic materials are basically concentrated in the southern most portion in unit FR 617 close to a path feature, and in the northern most portion in unit FR 654 (Figures 3.58, 3.59 and 3.60); this may indicate that features like the intentional soil fillings and the path could be related to earlier occupations, but those densities are too low to say this categorically; these materials could have been part of a nearby occupation of the Classic period, whose materials

were simply placed out through more intense activities and by the constant traffic of the people from the Recent period.

In Household 10, 48 post holes were found; they emerged within the limits of the dark brown soil and the yellowish clay, at depths between 18 and 22 cm (Figures 3.57 and 3.60). The distribution of the post holes in units FR 609, FR 615, FR 645, FR 649, FR 657, FR 664, FR 663, FR 627 and FR 671 configure a circular structure from the Recent period that had a diameter between 5.8 and 6.5 meters, and covered an area between 30 and 35 m² (Table 3.5); they were located at distances from 30 cm to 120 cm, but also formed large gaps of 3 meters or more. Post holes inside this circumference may have been the remains of internal divisions of the house, supports to the roof, or Recent period house rearrangements; post molds to the northern portion in units FR 612, FR 644-646, FR 648, FR 654, FR 660 and FR 666 may have been part of an external structure to the previous house, or maybe were the remains of another house. The same can be said of the group of post molds placed on the western side of the excavations in units FR 628, FR 630, FR 673, FR 674, FR 613, FR 598, FR 670 and FR 672 that formed part of a small structure from the Recent period, whose inhabitants lived before the ones who create the large midden and the burned soil. In general, post holes have diameters between 16 and 20 cm and depths between 18 and 24 cm, a post mold from unit FR 613 has a diameter of 30 cm and depth of 15 cm, another one from unit FR 603-631 is larger than 30 cm and does not exceed 10 cm in depth. Other features associated to these are shallow patches of intentional dirt filling found in units FR 608-612 and FR 654. In unit FR 620 a patch of burned soil was found close to an accumulation of charcoal that could have been used as a hearth for people from the Recent period because the small midden close to it had abundant *Barranquilla*

materials; a spindle whorl was found to the right side of it in that same unit. Small accumulations of sherds were part of units FR 620-604-674, and were close to basalt rocks of irregular shape in units FR 630-673; located close to them were heavy accumulations of Barranquilla sherds in units FR 598-670 and FR 600-602-624-672; finally, in unit FR 600 a *mano* was discovered (Figure 3.60).

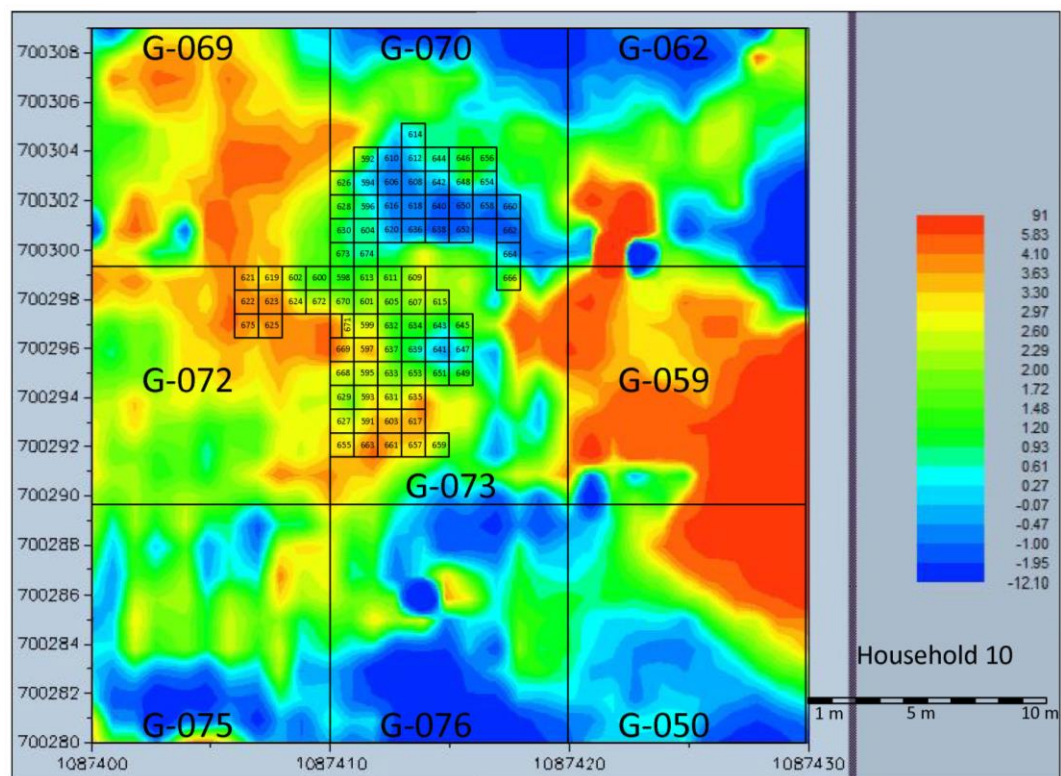


Figure 3.55. Magnetometer survey, Grids 050, 059, 062, 069, 070, 072, 073, 075 and 076, Household 10.

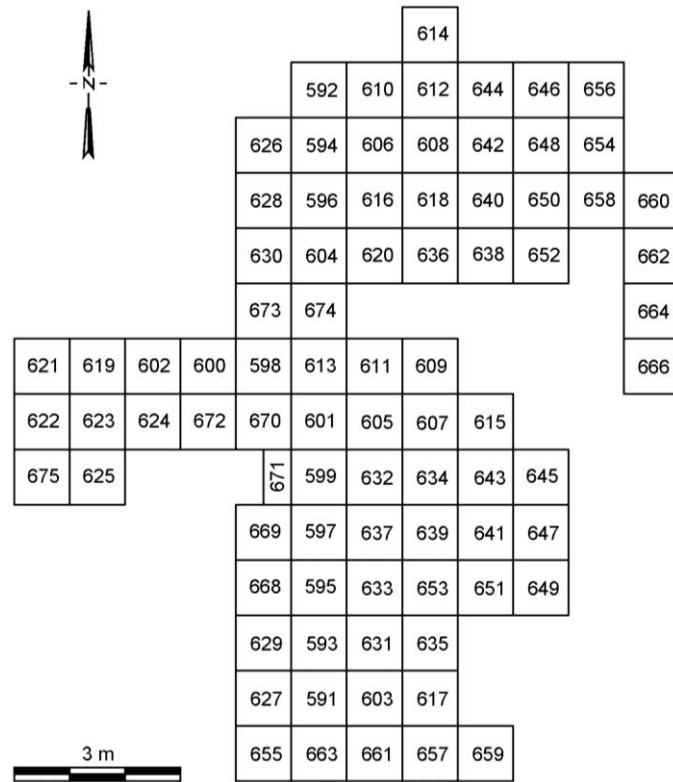


Figure 3.56. Household 10, units of excavation.

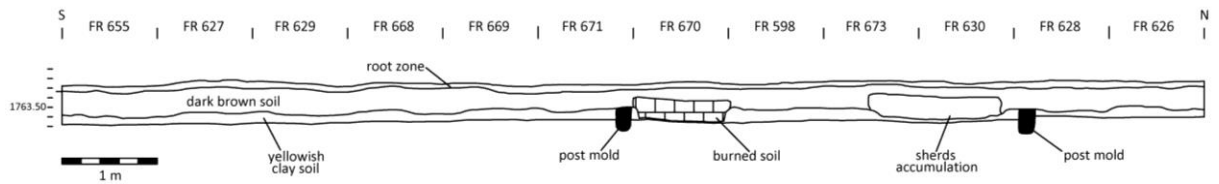


Figure 3.57. Household 10, profile.

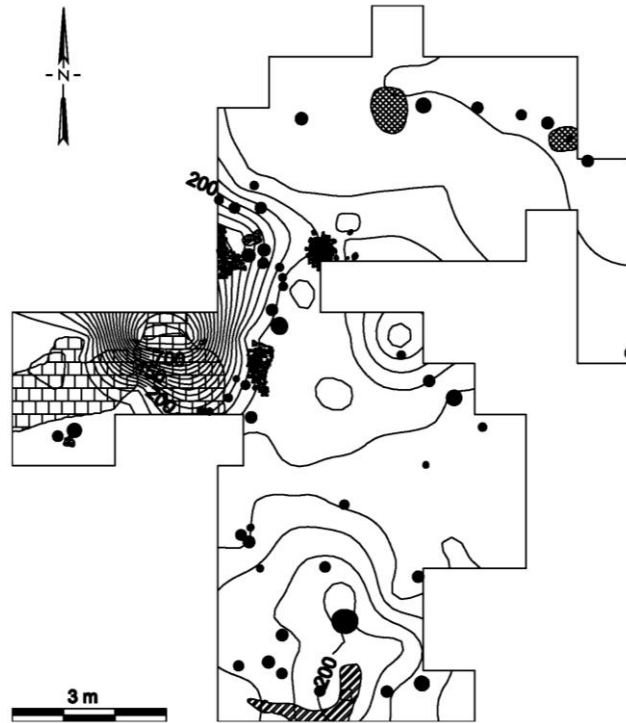


Figure 3.58. Household 10, Recent period sherd density.

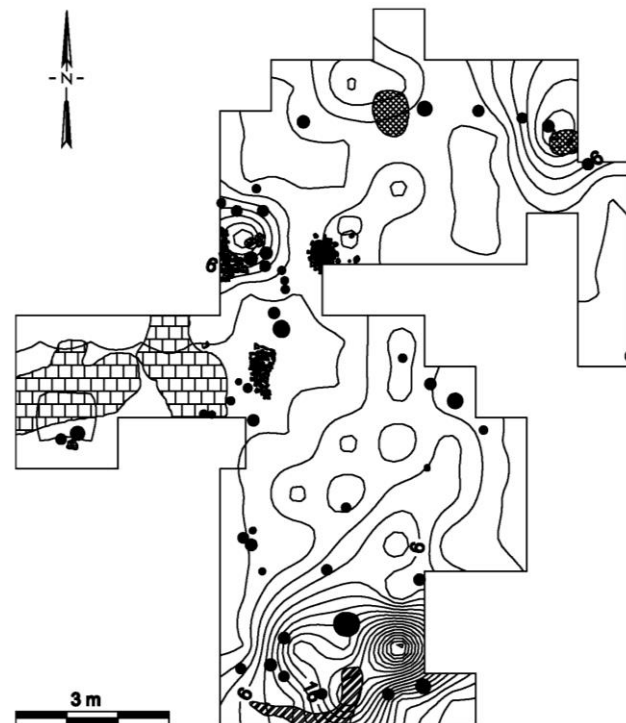


Figure 3.59. Household 10, Regional Classic period sherd density.

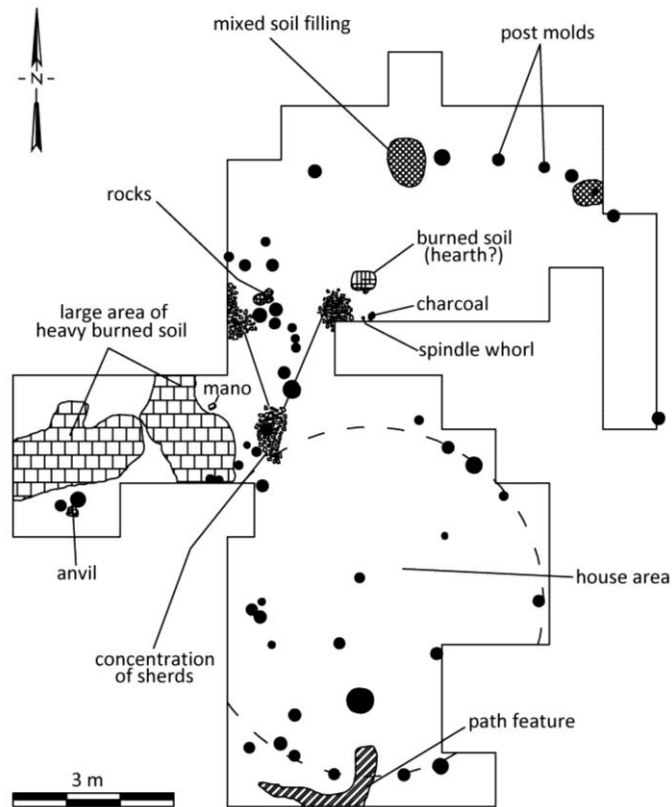


Figure 3.60. Household 10, features.

Table 3.1. Recent period ceramics assemblages (frequencies), Households 1 to 10 (HH1 - HH10).

| Artifacts | Recent Period Households: Ceramic Assemblages | | | | | | | | | | |
|--------------|--|------|------|------|-----|-----|------|------|------|------|-------|
| | Households (HH) | | | | | | | | | | Total |
| | HH1 | HH2 | HH3 | HH4 | HH5 | HH6 | HH7 | HH8 | HH9 | HH10 | |
| Total Sherds | 6803 | 2032 | 3913 | 1953 | 767 | 785 | 1312 | 2179 | 2162 | 1770 | 23676 |
| Dect. Sherds | 1248 | 174 | 238 | 151 | 69 | 93 | 268 | 307 | 184 | 67 | 2799 |
| Rim Sherds | 648 | 148 | 241 | 164 | 67 | 66 | 96 | 175 | 155 | 68 | 1828 |
| Jars | 364 | 110 | 175 | 94 | 34 | 34 | 61 | 104 | 105 | 48 | 1129 |
| Bowls | 270 | 29 | 62 | 65 | 31 | 27 | 33 | 65 | 41 | 17 | 640 |
| Plates | 4 | 3 | 1 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 13 |
| Bottles | 3 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 9 |
| Tripod Legs | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 9 |
| Cups | 1 | 3 | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 11 |
| Handles | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| Spindles | 2 | 1 | 1 | 3 | 1 | 0 | 1 | 2 | 1 | 1 | 13 |

Table 3.2. Recent period lithic raw material (frequencies), Households 1 to 10 (HH1 - HH10).

| Artifacts | Recent Period Households: Lithic Raw Material Assemblages | | | | | | | | | | |
|---------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|
| | Households (HH) | | | | | | | | | | Total |
| | HH1 | HH2 | HH3 | HH4 | HH5 | HH6 | HH7 | HH8 | HH9 | HH10 | |
| High Quality Rocks* | 144 | 87 | 83 | 24 | 4 | 9 | 33 | 24 | 12 | 6 | 426 |
| Low Quality Rocks** | 521 | 248 | 347 | 191 | 38 | 32 | 80 | 109 | 105 | 40 | 1711 |

* Obsidian, chert and quartz

** Andesite, basalt, rhyolite and slate

Table 3.3. Recent period chipped stone assemblages (frequencies), Households 1 to 10 (HH1 - HH10).

| Artifacts | Recent Period Households: Chipped Stone Assemblages (ChS) | | | | | | | | | | |
|---------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|
| | Households (HH) | | | | | | | | | | Total |
| | HH1 | HH2 | HH3 | HH4 | HH5 | HH6 | HH7 | HH8 | HH9 | HH10 | |
| Total ChS Items | 665 | 335 | 430 | 215 | 42 | 41 | 113 | 133 | 117 | 46 | 2137 |
| Total ChS Artifacts | 280 | 139 | 162 | 121 | 19 | 22 | 66 | 77 | 57 | 16 | 959 |
| Scraper | 67 | 35 | 50 | 21 | 3 | 8 | 16 | 26 | 25 | 2 | 253 |
| Knife | 158 | 85 | 98 | 88 | 16 | 11 | 46 | 39 | 24 | 10 | 575 |
| Notched scraper | 24 | 9 | 11 | 5 | 0 | 2 | 3 | 7 | 4 | 4 | 69 |
| Drill | 7 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 0 | 14 |
| <i>Raedera</i> | 15 | 7 | 3 | 2 | 0 | 1 | 1 | 2 | 2 | 0 | 33 |
| Hammer | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Multifunctional | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Adze | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Grinder | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Core | 15 | 4 | 6 | 3 | 2 | 3 | 6 | 12 | 10 | 4 | 65 |
| Debitage | 370 | 192 | 262 | 91 | 21 | 16 | 41 | 44 | 50 | 26 | 1113 |

Table 3.4. Recent period ground stone assemblages (frequencies), Households 1 to 10 (HH1 - HH10).

| Artifacts | Recent Period Households: Ground Stone Assemblages (GS) | | | | | | | | | | Total |
|--------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|
| | Households (HH) | | | | | | | | | | |
| | HH1 | HH2 | HH3 | HH4 | HH5 | HH6 | HH7 | HH8 | HH9 | HH10 | |
| Total GS Items | 41 | 13 | 15 | 19 | 1 | 8 | 14 | 20 | 3 | 15 | 149 |
| Total GS Artifacts | 33 | 11 | 15 | 19 | 1 | 8 | 12 | 17 | 3 | 13 | 132 |
| Metate | 5 | 0 | 1 | 1 | 0 | 3 | 0 | 2 | 0 | 1 | 13 |
| Mano | 6 | 1 | 3 | 1 | 0 | 1 | 4 | 7 | 0 | 4 | 27 |
| Polishing Stone | 12 | 8 | 10 | 17 | 0 | 1 | 5 | 6 | 2 | 5 | 66 |
| Axe | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 3 |
| Sphere | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Pendant | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Grinder | 3 | 1 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 9 |
| Hammer | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 7 |
| Anvil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Other | 8 | 2 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 2 | 17 |

Table 3.5. Recent period house dimensions, Households 1 to 10 (HH1 - HH10).

| Recent Period Households: House Dimensions | | |
|---|---------------|---------|
| Household (HH) | Diameter (m)* | Area |
| HH1 | 7.4 - 7.8 | 43 - 50 |
| HH2 | 5.6 - 6.3 | 25 - 31 |
| HH3 | 5.8 - 6.1 | 26 - 31 |
| HH4 | 5.6 - 6.3 | 28 - 33 |
| HH5 | ? | ? |
| HH6 | 6.2 - 6.4 | 30 - 34 |
| HH7 | 6.8 - 7.3 | 38 - 43 |
| HH8 | 5.4 - 5.7 | 23 - 26 |
| HH9 | 5.8 - 6.3 | 29 - 35 |
| HH10 | 5.8 - 6.5 | 30 - 35 |

* Approximate

3.11 RECENT HOUSEHOLDS AND SOCIAL DIFFERENTIATION

The distribution of Barranquilla ceramic densities and their association with post molds define this sample of ten households as mostly pertaining to the Recent period, although many of these areas were settled before. These houses were circular in their base shape and constructed using posts between 15 and 20 cm in diameter. Posts were embedded between 15 and 30 cm into the ground. The distribution of post molds inside these circular areas may well have corresponded to supports for the roof and internal divisions. The diameter of the houses ranged from 5.6 to 6.5 m², with the exception of Households 1 and 7 which have larger diameters of 6.8 and 7.8 m². These dimensions fit well within the range of household diameters observed in the Alto Magdalena for the Recent period (Duque and Cubillos 1981, 1988, Drennan 2000, Llanos 1988, Llanos and Duran 1983, Sánchez 1991) except for the extremely large structure R-1 at La Estación (Duque and Cubillos 1981: 25-26), whose dimensions were not reached even by the largest houses investigated in this study. Excavations at La Estación revealed a circular structure 9 m in diameter. However, the artifact assemblage associated with it shows no special characteristics; even the density of artifacts was unusually low. The small amount of ceramics shows no high proportion of decorated ceramics. Lithic materials show no finer or better elaborated ground or chipped stone artifacts especially designed for special activities. Even the two graves that were found inside the house showed no special offerings or special features. Nevertheless, it is worth noting the presence of jars, several of them quite large; and the presence of a large ditch with basalt rocks and ground stone near the doorway in the south-eastern portion of the house (Duque and Cubillos 1981: 25-36). Finally, despite its

large size, this structure does not suggest a household of any higher rank than those excavated as part of the present study. Doorway areas in the houses of this study were normally discovered to the south-eastern and north-western sides of the dwellings, although it is possible that some of the doorway features of dark brown soil corresponded to previous periods. Despite differences in house sizes, these data give support to the idea that during the Recent period the pre-Hispanic household unit in the Alto Magdalena could have corresponded to the nuclear family consisting of five to six members (Drennan 2000).

Some houses, like the one in Household 9, were slightly raised above the ground (about 10 cm). In the immediate area outside the walls of the house some families dug small holes to store perishable items as was observed in Households 1 and 6 (the specific nature of these elements is uncertain since there are no soil and flotation analyses). The inhabitants from Households 1, 2, 6, 7, 8 and 9 kept jars with restricted mouths to store liquids adjacent to the walls, outside the house. Layers of residue on the walls of some of the jars suggest the storage of thick liquids, possibly fermented. On the south-western flanks of the structure of Household 8 was found a large slab, possibly used as a seat, surrounded by lithic debitage suggesting that stone tools were manufactured outdoors. Food preparation took place in both internal and external areas of the houses. These investigated households offer no evidence of burials inside the house, but between Households 1 and 2 and Households 7 and 8 a large cemetery covering an area of about 64 m² was found. It was surrounded by large household midden deposits. Pathways were also evidenced there. The broad presence and density of Recent Period materials in this flat area suggest that several houses were grouped closely together here.

Ceramic and lithic inventories (chipped and ground) give evidence that daily activities of

food preparation and consumption were carried out in all households. In the same way, some similar basic tasks like tool making were part of the domestic economy. Moreover, the presence of decorated ceramics and finer types of raw materials for lithic tools in almost all the households is an indication access to better resources was not strongly restricted. Although differences in proportions of various artifacts classes show that socioeconomic status during Recent times was variable, the differences between families were not extremely large, as we will see in the Chapter 4. Differences in specific types of artifacts from household to household are not very large and do not indicate much specialization in productive activities. By contrast, the presence of a basic set of jars, bowls, knives, scrapers, spindle whorls and *manos* and *metates* in all these households denote that the basic subsistence economy was in the hands of every domestic unit.

4.0 ANALYZING SOCIAL DIFFERENTIATION AT THE HOUSEHOLD LEVEL IN THE ALTO MAGDALENA

To analyze the patterns of social differentiation during the Recent period (AD 900-1530) through a household view I studied the size and development of residential structures; the proportions of sherds associated with ceramic forms for cooking and for food serving in opposition to other forms; the proportions of pottery forms such as jars and the presence of structures to store any type of product; the proportions of decorated ceramics; the proportions of pottery and lithic objects associated with activities of craft specialization; and, the presence of exotic or luxury items. The results on these topics largely summarize the socio-economic differences between people from high status and people from low status in this period.

Ceramic collections, in particular, permitted the reconstruction of vessel shape, size, decoration and spatial distribution in ten household units. These variables are extraordinarily significant to reconstruct both special and ordinary activities as well as wealth and status behavior. For conducting the ceramic analyses I used a sample of 23,676 Barranquilla Buff sherds, the distinctive Recent period pottery type widely distributed in the Alto Magdalena (Drennan 1993). A number of rims ($n = 1791$), tripod vessel legs ($n = 9$), cup bases ($n = 11$), handles ($n = 4$) and spindle whorls ($n = 13$) coming from this set allowed us to establish a general domestic pottery assemblage mainly consisting of jars, bowls, plates, bottles, tripod

vessels, cups, any type of pots with handles, and of course spindle whorls (complete data are available in the Comparative Archaeology Database <www.cadb.pitt.edu>). The most common forms are jars (n = 1129, average across all ten households = 62.4%) and bowls (n = 640, average across all ten households = 33.7%); this is why the subsequent analyses of vessel forms were primarily based on these two categories. The small numbers of plates (n = 13, average across all ten households = 0.8%), bottles (n = 9, average across all ten households = 0.8%), tripod vessels (n = 9, average across all ten households = 0.4%), cups (n = 11, average across all ten households = 0.8%), pots with handles (n = 4, average across all ten households = 0.2%) and spindle whorls (n = 13, average across all ten households = 0.9%) produced such wide error ranges that statistically significant differences between households could not be observed. These categories were, however, used in calculating diversity indices to learn whether the social status and economic differences between families were related to variable ranges of ceramic forms. Decorated ceramics (n = 2799) are used as markers of wealth because they are finer and better made (Feinman, Upham and Lightfoot 1981). In addition, a Simpson's diversity index using different kinds of decoration (see Chapter 3) was calculated to assess differences in the range of access to decorated pottery between households.

Lithic inventories permitted the classification of instruments by function and by type of raw material in the sample of those ten households. These variables are especially significant to reconstruct daily life activities and specialized crafting activities. The sample of chipped stone pieces (n = 2137) came from archaeological deposits with more than 80% of Barranquilla ceramics, and ground stone tools (n = 149) were from excavation units retaining more than 95% of Barranquilla pottery. Chipped stone objects are grouped into three larger categories: cores (n

= 65, average across all ten households = 5%), artifacts (n = 959, average across all ten households = 47.7%), and debitage or non-utilized flakes (n = 1113, average across all ten households = 47.3%). The vast majority of artifacts are scrapers (n = 253, average across all ten households = 12.8%), knives and *raederas* (n = 608, average across all ten households = 30.3%; and notched scrapers (n = 69, average across all ten households = 3.6%). In lesser quantities the samples include drills (n = 14, average across all ten households = 0.5%), hammers (n = 4, average across all ten households = 0.1%), multifunctional tools (n = 9, average across all ten households = 0.2%), one adze and one grinder (n = 2, average across all ten households = 0.2%). The raw materials for these objects are: obsidian, chert and quartz, which were considered good quality materials; and rhyolite, andesite, basalt and slate which were grouped as bad quality materials. A small sample of unidentified rocks was part of this group and coded as “other.” A Simpson’s diversity analysis was calculated to determine whether there were differences between households in terms of greater or lesser diversity of artifacts and raw materials access.

The ground stone tools are mainly *metates* (n = 13, average across all ten households = 7.8%), *manos* (n = 27, average across all ten households = 15%) and small cobbles with at least one polished side (n = 66, average across all ten households = 42.5%). At lower counts there are axes (n = 3, average across all ten households = 14%), spheres (n = 2, average across all ten households = 1.5%), pendants (n = 3, average across all ten households = 0.7%), grinders or pounders (n = 9, average across all ten households = 6.6%), hammers (n = 7, average across all ten households = 2.7%), anvils (n = 2, average across all ten households = 1.3%), and indeterminate items coded as “other” (n = 19, average across all ten households = 9.1%) that

are mainly broken fragments with ground facets. The vast majority of ground stone objects were made in basalt and volcanic rocks of medium to coarse grain, different from fine-grained basalts which were used to manufacture flaked tools. Few pieces of other types of rocks were included, just six items in quartz, one in granodiorite, and two for an indeterminate non-local material (possibly serpentine).

4.1 WEALTH AND SOCIAL STATUS

Archaeological and ethnographic studies (Arnold 1985, 2008, Clarke and Blake 1991, 1994, Falchetti 1975, Rice 1991, Sinopoli 1991, 1999, Skibo 1992, 1999, Stark 1999, Vasco 1987) have shown that different proportions of finer and better manufactured ceramics are related to socioeconomic differences and behavior. In particular, because both better made and finer ceramics involve higher cost of production, they have functioned as one useful indicator of wealth (Feinman, Upham, and Lightfoot 1981: 873-4). The category of decorated ceramics, while they are part of the larger group of better made and finer objects, has been used here as a starting point to discern socioeconomic differences among families in the central community of Mesitas during the Recent period. Higher proportions of them were seen as evidence of household wealth. The higher proportions of fine rock materials such as obsidian also provided information about household wealth, because they were presumably costly and harder to obtain given their availability in distant regions. Hard rocks such as chert and quartz, which were also a non-local material but could be obtained more easily from neighboring regions, were also useful for measuring household wealth. A single category of higher quality lithic raw

material was formed using both of them. An additional indication of household wealth used in this study was the size of the dwelling, because normally larger structures required a larger investment of resources.

The proportions of decorated pottery show differences between households at Mesitas. Proportions of them in Households 1 and 7, in particular, stand out above any other household. From the total counts of sherds coming from Household 1 ($n = 6803$) 18% are decorated. In Household 7, out of 1,312 sherds 20% are decorated. Figure 4.1 shows that the difference between these two households and the others is very significant ($CL > 99\%$). The differences also have some strength. The households with the lowest proportions of decorated ceramics (3 and 10) have only 4 to 6%. Thus some households have a proportion some four or five times higher than others. There is not, however, a large gap between households with high proportions of decorated ceramics and others with sharply lower proportions, but rather a more continuous range of variation that encompasses a substantial difference between households at opposite ends of the scale. It is interesting to compare these patterns to variation across households in the diversity of different kinds of ceramic decoration (Fig. 4.2). Simpson's index shows that all households except one have a high diversity of kinds of decoration, but Household 10, where the proportion of decorated ceramics was lowest, has a distinctly lower diversity of decoration as well.

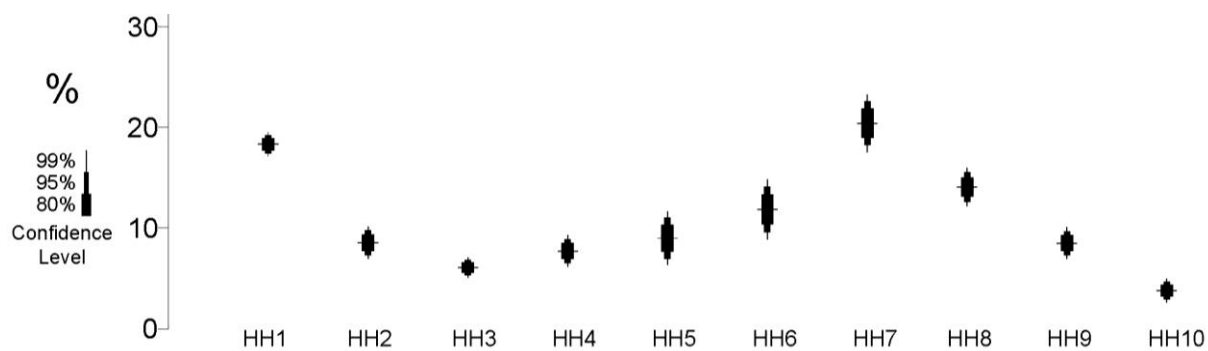


Figure 4.1. Bullet graphs of household proportions of decorated fragments to total fragments (Recent Period).

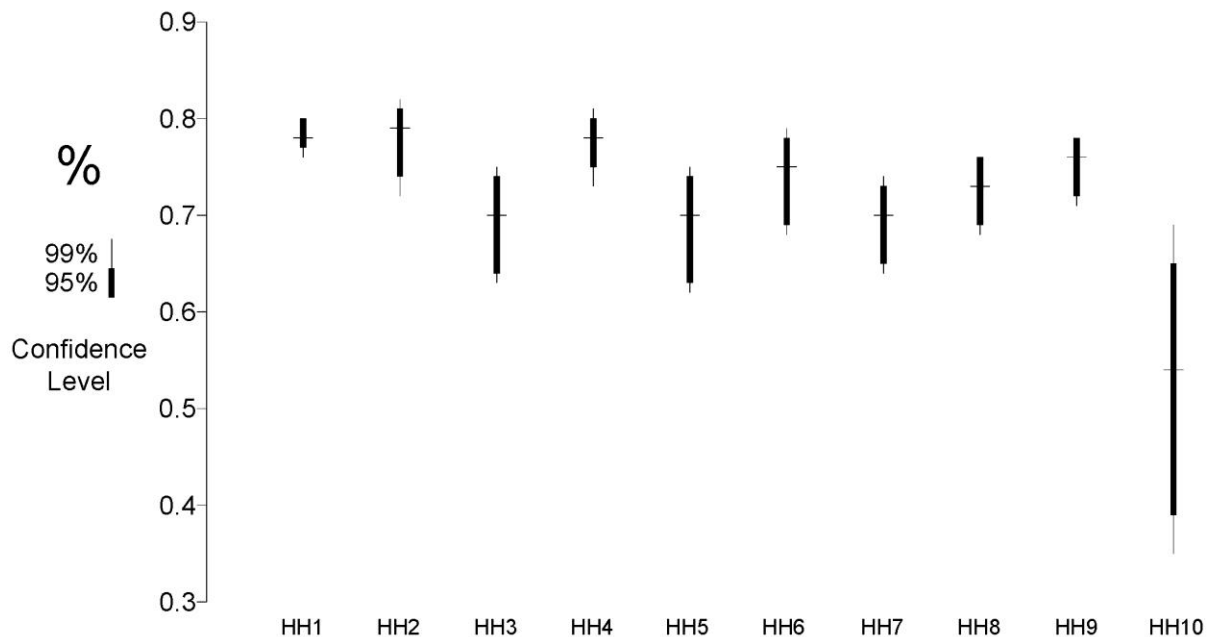


Figure 4.2. Bullet graphs of Simpson's Index for ceramic decoration (Recent Period).

The presence of higher quality lithic raw material has been used as a wealth marker too. While obsidian (n = 311) is an important element because it came from distant sources outside the region (Blick 1993, Jaramillo 1996) and as a material that produces tools with sharp edges, chert (n = 104) and quartz (n = 11) also stand out for their fine grained structure, and they could be obtained on the banks of the Naranjos, Sombrerillos and Magdalena rivers not so distant

from Mesitas. It is Household 7 which displays the highest proportion of obsidian, chert and quartz (Figure 4.3), followed by the proportions in Household 2. The differences in proportions between these two households and the rest are very significant (CL >99%) and of at least some strength. Although high quality lithic raw material is in the minority everywhere, the proportion of high quality material in some households is around three times higher than in some others. There is a tendency for families that had greater access to decorated pottery also to have higher proportions of good quality material for manufacturing chipped stone tools. This same pattern was observed in the distribution of ground stone tools made in finer materials as opposed to those of coarse-grained basalts. Four polishing stones and two hammers made in quartz came from Households 7 and 8, a metate fragment in granodiorite was found in Household 8, and 2 indeterminate objects (with an appearance similar to preforms for manufacturing beads) of a non-local material (possibly serpentine) came from Households 1 and 2 (Figures 4.4).

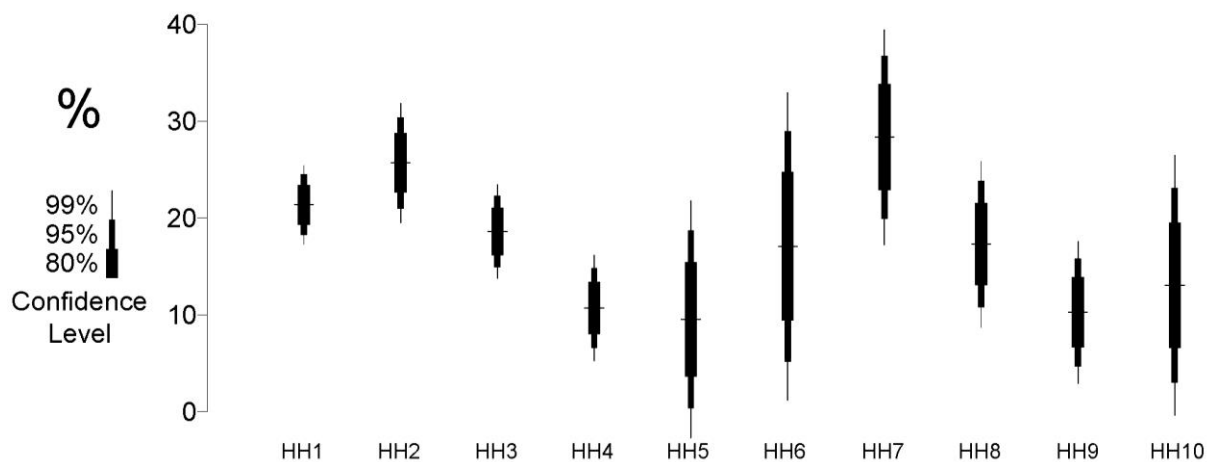


Figure 4.3. Bullet graphs of household proportions of high quality lithic material to total materials (Recent Period).



Figure 4.4. Non-local rocks (possibly serpentine), from Household 1 (left) and Household 2 (right).

The distribution of lower quality lithic materials denotes an inverse pattern. The highest proportions of andesite ($n = 750$), basalt ($n = 592$), rhyolite ($n = 259$) and slate ($n = 71$), that can be obtained locally and abundantly in the region, are distributed among the households having lower proportions of decorated pottery. Figure 4.5 shows that Households 5 and 9 display the highest proportion, closely followed by Households 4 and 10. The differences in proportions between these four households and the others are significant to very significant (CL = 95% and > 99%) and of some strength. To put it in perspective, the lower proportions of finer rocks in Households 3, 4, 5, 6, 8, 9 and 10 are fully consistent with their lower proportion of decorated ceramics. As is the case for decorated ceramics, the gaps in higher proportions of finer rocks between households are progressive and continuous starting from Household 7 and going down to Household 5. A similar pattern can also be observed through the differences in proportions of lower quality materials beginning with Households 5 and 9 and going down to Households 2 and 7. In general, the diversity analysis reveals an overall level of high diversity, where Households 4, 5, 9 and 10 stand as the lowest, while Households 7 and 8 and to a lesser extent Household 1 are the highest (Figure 4.6). This finding is quite similar to what was

observed about access to different varieties of decorated pottery. The analysis of lithic raw materials indicates that lower ranking families could get obsidian and chert but in smaller amounts than higher ranking households.

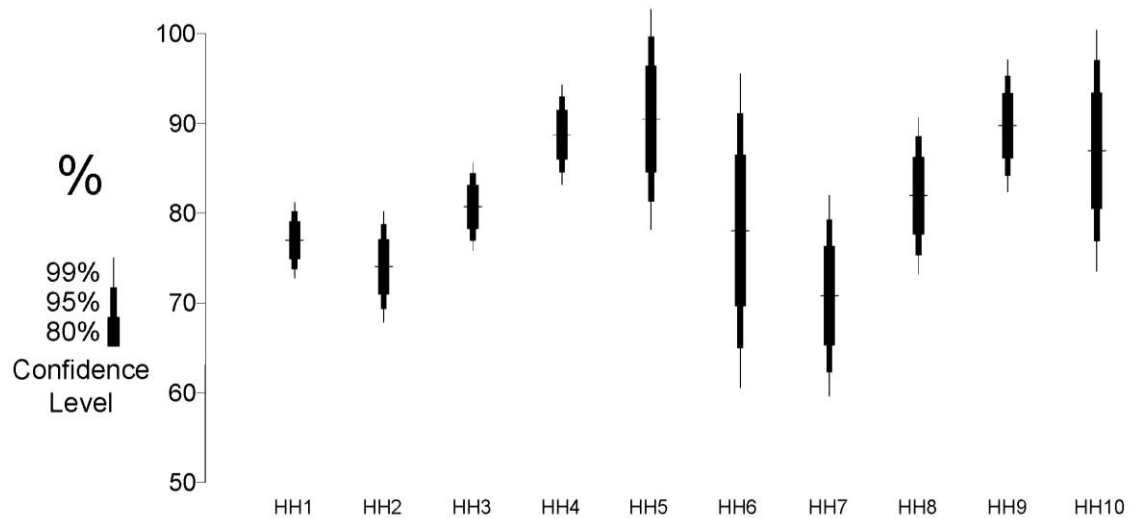


Figure 4.5. Bullet graphs of household proportions of lower quality lithic material to total materials (Recent Period).

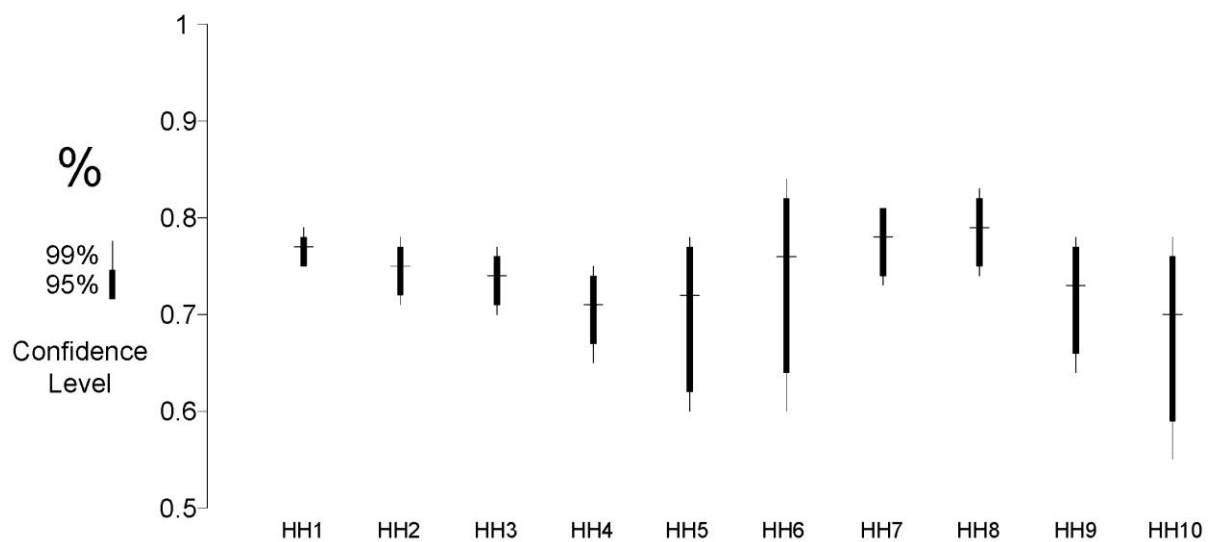


Figure 4.6. Bullet graphs of Simpson's Index for lithic raw material (Recent Period).

The strength of these differences in proportions of finer rock materials between households suggests at least some degree of wealth differences between families. The non-wealthy families were fundamentally more restricted in accessing obsidian and chert. But if this was so, then why does Household 2 have such a higher amount of fine rocks when it was a non-wealthy household? That family seems to be the exception that proves the rule.

In Household 2 the proportions of lithic tools manufactured in finer materials as well as the distance to the wealthiest Households 1 and 7 give us some clues about this difference. At first, the largest amounts of objects manufactured in obsidian and chert in Household 2 were knives (50% made of obsidian and 19% made of chert); this is reasonable knowing that these two types of raw material allow the manufacturing of tools with sharper edges. And secondly, Household 2 is separated from Household 1 by a distance of only 6 or 7 m. It is likely that in Household 2 productive activities related to demand generated in Household 1. Household 1 may have provided Household 2 with the obsidian and chert for tools involving intensive cutting activities. The location of a lower rank family next to a higher rank family in Mesitas might well not be an accident. That is also the case of Household 8 only some 2 m from Household 7. Quite similar to the previous case, it seems that Household 8 was producing goods and providing some services to Household 7, but in this case the activities required greater amounts of scrapers (50%) than knives (35%) made of chert. Interestingly, the complementarity between these two pairs of households is also observed in the distribution of jars and bowls, as we will see. Households 2 and 8 are separated from Households 1 and 7 by a distance of only 14 to 15 m (Figure 3.2) leading us to think that they formed a closely cooperative group linking families with different social ranking.

Finally, to these sources of data it is also important to add dwelling information, which we have previously sketched out. For example, circular distributions of post molds in Households 1 and 7 (Figures 3.7, and 3.42) show that these two families' houses were somewhat bigger than those of other households. In the first case, the dwelling could have covered an area of about 43 to 50 m² reaching between 7.4 and 7.8 m in diameter; in the second case the house could have covered an area between 36 to 42 m² reaching from 6.8 to 7.3 m in diameter (Table 3.5). The other households exhibited areas between 23 and 35 m² and 5.4 to 6.5 m in diameter (Table 3.5). In addition, in the northwestern section of Household 7 were found two small slabs arranged as steps (Figure 3.42).

From the ceramic assemblages in the sampled households, the vast majority of vessel forms correspond to jars (n = 1129) and bowls (n = 640), and the jars are by far predominant. Ethnographic information provided by Vasco (1985: 53-62) shows that nuclear families in the Garrapatas and the Chami communities (Colombia) typically used large jars or "*cantaros*" with a narrow neck and everted rim to cook solid food (rim diameter varies between 17 cm and 26 cm, Md = 22.25 cm); while larger neckless jars with an open mouth serve for the preparation of alcoholic drinks such as *chicha* or corn beer; solids and liquids can be subsequently packaged and stored in smaller and narrower jars. Sometimes those jars are buried either to keep the product fresh or to accelerate the fermentation process (Falchetti 1975, Vasco 1987). Another example can be drawn from the Dangtalan and Dalupa villages (Philippines) (Aronson, Skibo and Stark 1994: 85-6; Longacre 1981, 1991: 98-9; Stark 1994: 180-2; Trostel 1994: 221) where families normally use three types of utilitarian jars: one for rice cooking (the *ittoyom*), one for meat and vegetable cooking (the *oppaya*), and another one for water storage (the *immosso*).

The *ittoyom* normally has the greatest size while the *immosso* has the shortest size; the *oppaya* is a medium size. In both cases, as in larger samples of ethnographic (D. Arnold 1993: 141-2; Deal 1998: 167; P. Arnold 1991: 63) and archaeological studies (Drennan 1976: 77, Flannery and Marcus 1994, 2005, Hirth 1993:137–138; Whalen 1981: 59) bowls generally account for serving food and drinks and are normally used individually. Thus, household elevated status was basically treated here as a result of higher proportions of serving vessels over cooking vessels. The distribution and concentration of accessories like pendants and luxury objects such as non-local items also served as supplementary indicators of high status.

In some households, bowls and jars are associated with small amounts of other vessel forms like plates (n = 13), bottles (n = 9), tripod vessels (n = 9), cups (n = 11) and any type of vessel with handles (n = 4), but the proportions of these vessel forms do not show significant differences between households, in part because they are so infrequent (Figures 4.7 and 4.8). On the contrary, when comparing the distribution of bowls the lower proportions in Households 2, 3, 9 and 10 form a group setting them apart from the rest (Figure 4.9). The other six households form a relatively homogeneous group exhibiting higher proportions of bowls, Households 1 and 5 emerge as the highest. The differences in proportions between these two larger bunches of households are highly significant (CL >99%) and have some strength, with bowl proportions in some household approximately double those of other households. The percentages of jars form two other groups of households which are relatively well differentiated; one made up of Households 2, 3, 9 and 10 exhibits higher proportions; and the other group composed of Households 1, 4, 5, 6, 7 and 8 (Figure 4.10) has smaller proportions. The proportions of jars show an inverse pattern that is understandable because these two

forms are predominant. The differences between these two larger groups are significant to very significant (CL = 95%, > 99%). Since jar proportions range from a low around 50% to a high around 75%, the strength of the difference does not loom as large in the assemblages as is the case for bowls.

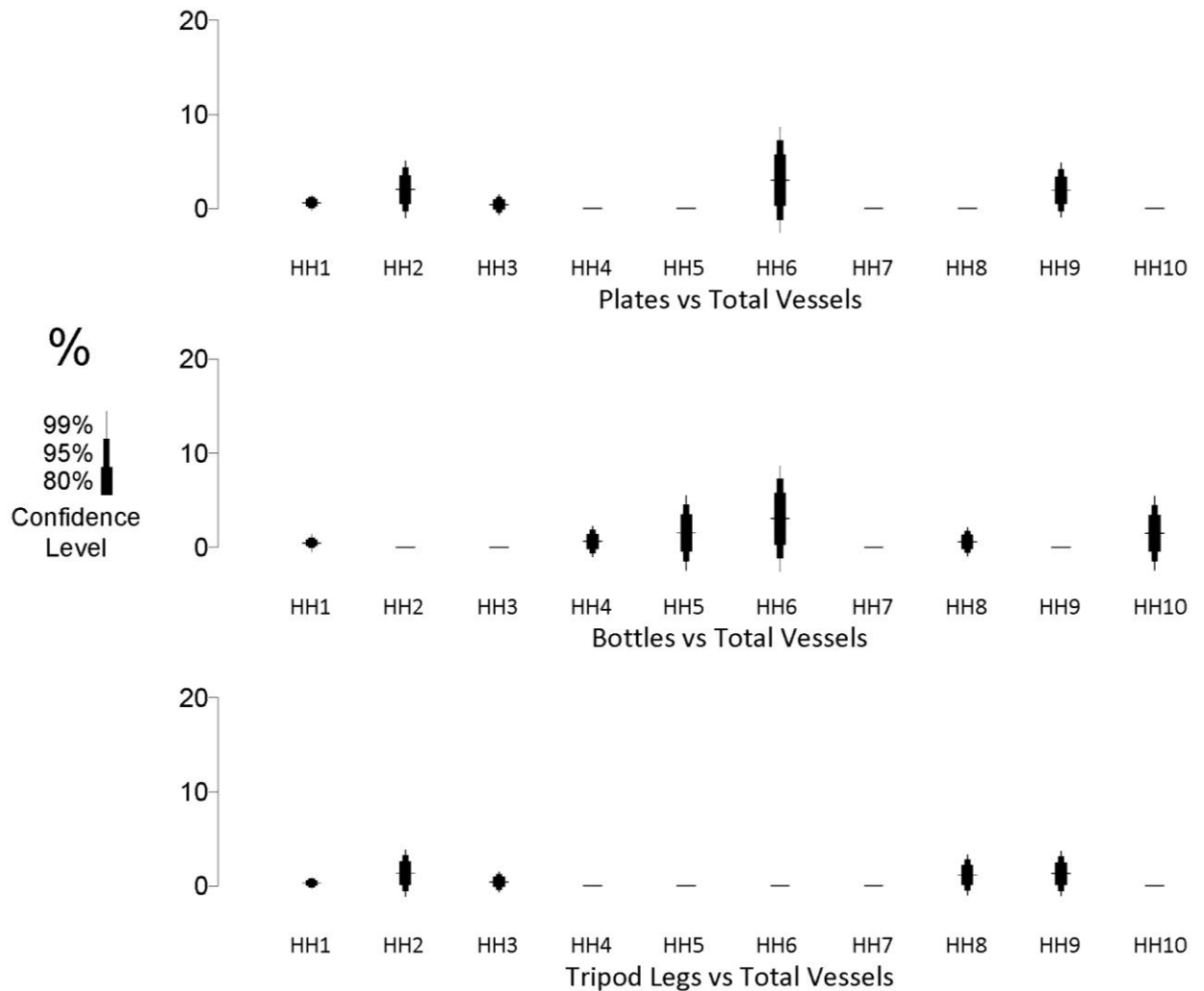


Figure 4.7. Bullet graphs of household proportions of plates, bottles and tripod vessels to total vessels (Recent Period).

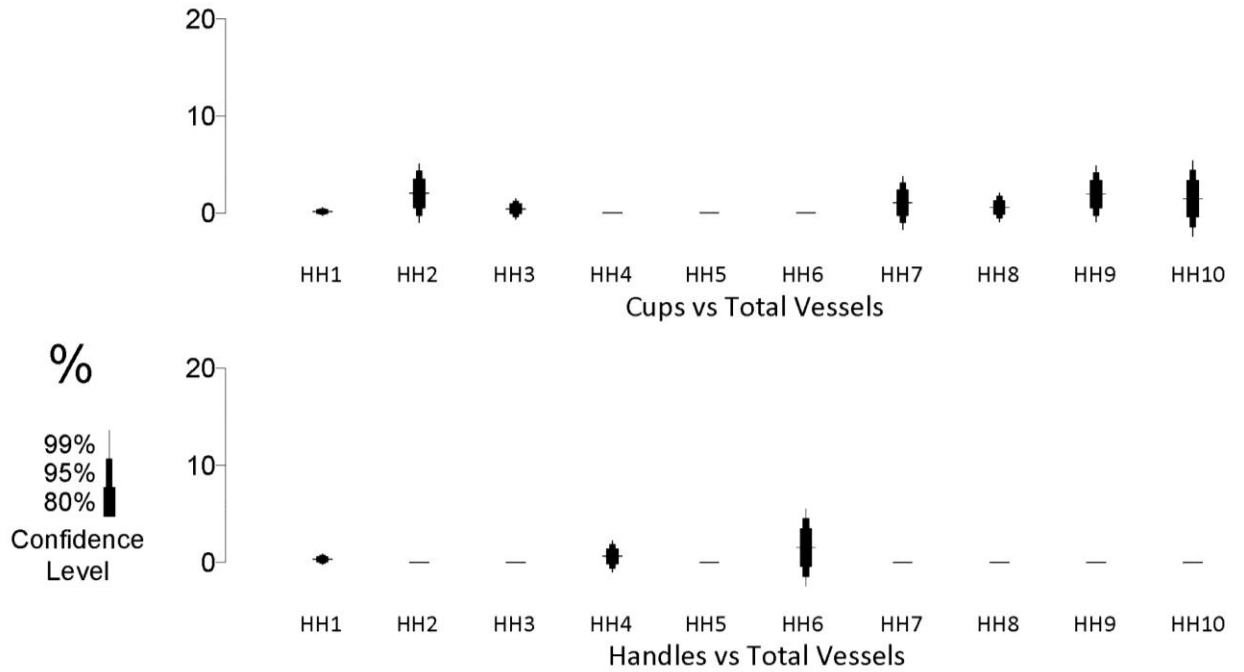


Figure 4.8. Bullet graphs of household proportions of cups and handles to total vessels (Recent Period).

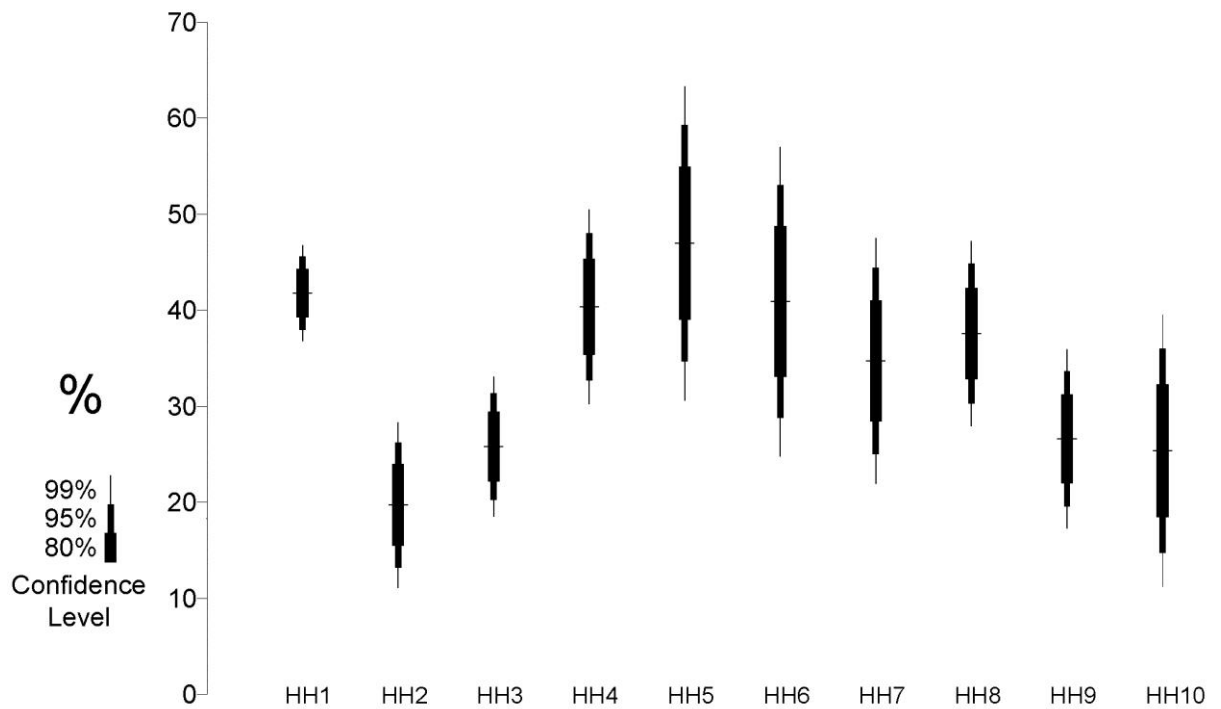


Figure 4.9. Bullet graphs of household proportions of bowls to total vessels (Recent Period).

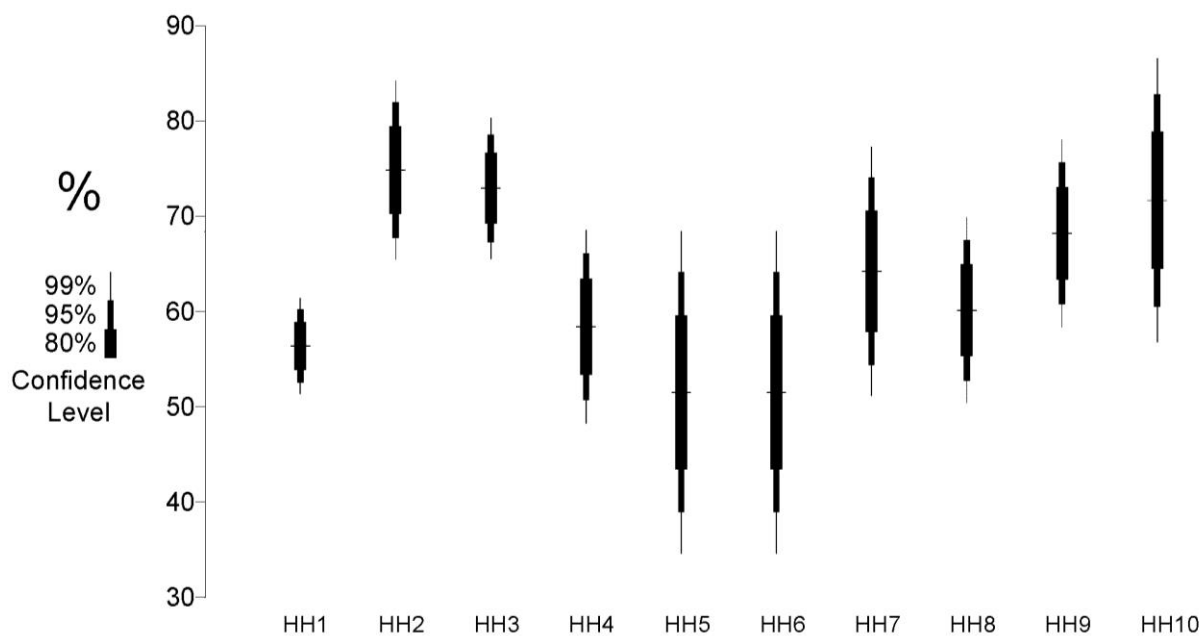


Figure 4.10. Bullet graphs of household proportions of jars to total vessels (Recent Period).

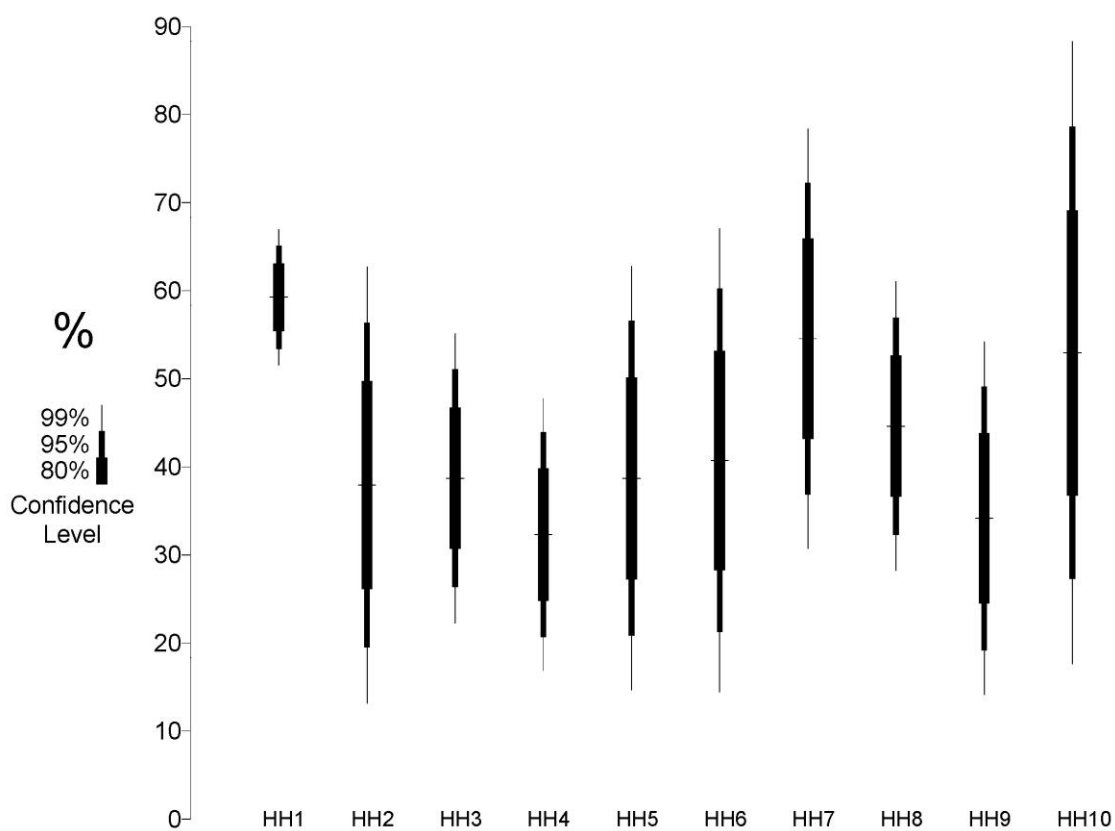


Figure 4.11. Bullet graphs of household proportions of decorated bowls to total bowls (Recent Period).

Higher proportions of decorated bowls are in Households 1, 7 and 10 (Figure 4.11). The differences between these three households and the others are significant to very significant (CL = 95%-99%) and have some strength, with some households having nearly twice the proportion of decorated bowls as others (Figure 4.11). Household 7 stands out for the highest proportion of decorated jars. The differences in decorated jar proportions are significant (CL = 99%) and are approximately twice the proportions encountered in some households (Figure 4.12). The higher proportions of decorated bowls and jars speak in favor of more elaborate domestic activities of food serving and consumption in Households 1 and 7.

The combination of proportion of bowls, jars and decorated pottery make Households 1 and 7 stand out as high status households, where more elaborate serving of food and drinks took place. In these two families it might be possible that foods and drinks were consumed in more decorated vessels as a general expression of enjoyment and luxury. In opposition, that combination makes Households 2, 3, 9 and 10 stand out as lower status, where less elaborate serving activities took place. In Household 2 for instance, a globular jar with a restricted mouth and *dactilar* impressions in the rim was found in the outer housing area adjacent to the house walls, buried and sealed along with a small bowl with no decoration on it (Figure 4.13). Thick layers of residue on the vessel walls suggest the storage of thick liquids, possibly for fermentation. In these four families serving and consuming of food involved the use of less costly utensils. Households 4, 5, 6 and 8 fall in between these two groups and display relatively high proportions of bowls, relatively low proportions of jars, and moderate amounts of decorated pottery. In Household 8, for example, were also found large jars partially buried (Figure 4.14); however, in contrast to Household 2 these items had positive painting decoration.

In these four families the domestic activities of serving and consuming were a little bit more elaborate than in the apparent lower status households, but lacked the greater expressions of luxury that Households 1 and 7 displayed. The status differences indicated between Recent period households are thus related to wealth or standards of living. The differences have considerable statistical significance and moderate strength, although there is not a large gap between elite and non-elite segments of the population. Instead, there is a more or less continuous range from low to high.

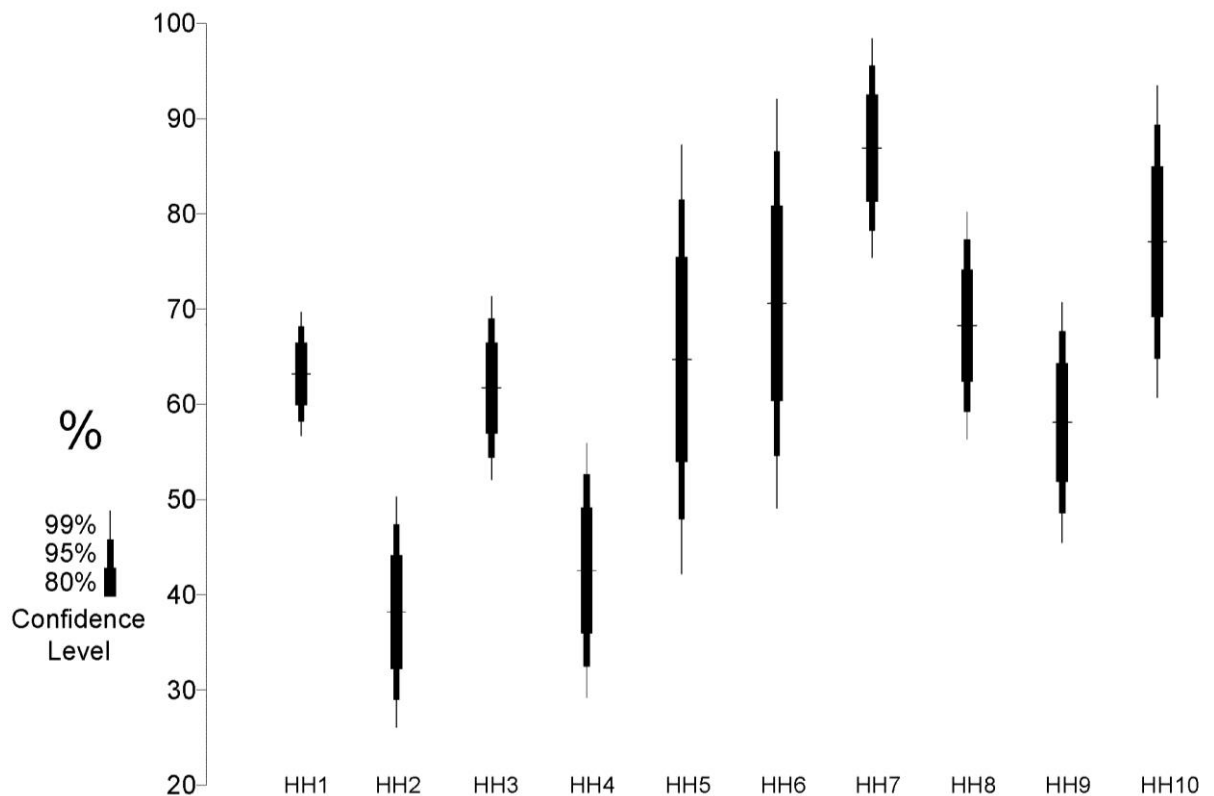


Figure 4.12. Bullet graphs of household proportions of decorated jars to total jars (Recent Period).



Figure 4.13. Globular jar with *dactylar* impressions on the rim (left); small bowl with no decoration (right), Household 2 (Recent Period).



Figure 4.14. Globular jars partially buried, Household 8 (Recent Period).

In the Recent period at Mesitas there was no exclusive or restricted access to decorated pottery; families from Household 1 and 7 had greater amounts of decorated pottery, while families from Households 6 and 8 had less, but somewhat more than the families from Households 2, 3, 4, 5, 9 and 10. Households 3 and 10 had less than any other family. Households 1 and 7 form a special group that has a greater proportion of fancy bowls and jars. As described in Section 3, these two households are separated from each other by only 14 to 15 meters (Figure 3.2), perhaps indicating they were related (through kinship ties) and formed a cooperative group with less wealthy and lower status people linked to them. In that group, the wealthier people possessed, displayed and used more decorated jars and bowls in everyday life.

The use of larger amounts of jars and bowls might also indicate an intensification of cooking, storage and consuming activities centered in different households. It is possible that families from Households 1, 4, 5, 6, 7, 8, and 9 were not only more engaged in activities of food consumption, but also they consumed food in different vessels from those they used for cooking. Households 1 and 7 did so with more luxurious vessels or better decorated pottery than in any other household. Households 2, 3 and 10 may have been consuming their own food in the vessels they use for cooking, but at the same time they were involved in the production of larger amounts of food and drinks than what they needed or consumed. This pattern is also visible in the results of a Simpson's diversity analysis in which these three households display greater homogeneity of vessels forms (CL = 95%-99%) (Figure 4.15).

In addition, the families from Households 1 and 7 also had larger houses and greater access to finer lithic raw material like obsidian and chert to manufacture better edged tools. Differences in dwelling size and architecture as well as in domestic possessions are not heavily

marked between households; but in any case, these two families had access to a greater labor force for dwelling building purposes and greater access to finer rocks. A polished piece of rock of nonlocal source as well as three unique stone pendants (Figures 4.4, 4.16 and 4.28) found in Household 1 implicate the use of small amounts of luxury possessions and prestigious items for body display in order to manifest their elevated status.

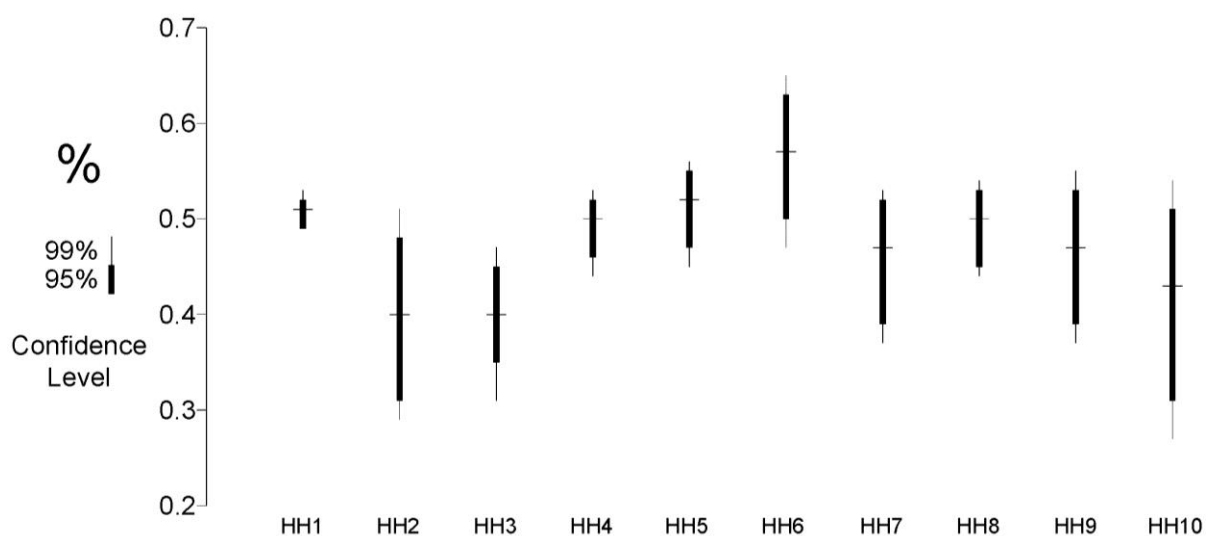


Figure 4.15. Bullet graphs of Simpson's Index for ceramic forms (Recent Period).



Figure 4.16. Pendants manufactured in rock, Household 1 (Recent Period).

4.2 DOMESTIC ACTIVITIES AND CRAFT PRODUCTION

Vessel sizes between households vary little. The midspreads of the two extreme cases for jar rim diameter are separated by a difference of just 4 cm, observed in Households 2, 5, and 6 which have a midspread of 6 cm and Households 4 and 10 comprising a midspread of 10 cm (Figure 4.17, Table 4.2). The medians of rim diameter do not vary substantially either. The gap separating the extremes groups is only 5.5 cm, with Households 1, 2 and 5 exhibiting medians between 15.5 cm and 16.5 cm and Household 6 having a median of 21 cm (Table 4.2). In similar fashion, the midspreads of rim diameters for bowls differ by only 7.25 cm from Household 5 with a midspread of 5.75 cm and Household 10 with a midspread of 13 cm (Figure 4.18, Table 4.2). Only slightly variation in the medians of rim diameter exists between Households 3 and 6 with a median of 22 cm and Household 9, with a median of 18 cm.

By and large, the stem-and-leaf plots of the overall samples of rim diameters of jars and bowls (Figures 4.19 and 4.20) reveal batches with normal distributions and relatively nearby outliers. The centers of these batches are near those of each of the ten subsamples, and the spreads of the batches are fairly similar among them (Drennan 2009: 169-70). Thus all households had very similar complements of jars and bowls and probably produced and consumed foodstuffs for their own use. Supporting this is the distribution and proportions of larger jars and larger bowls that depict no substantial variation within the sample of households (Figures 4.21 and 4.22). The Recent household unit, then, was the basic unit of production and distribution of food.

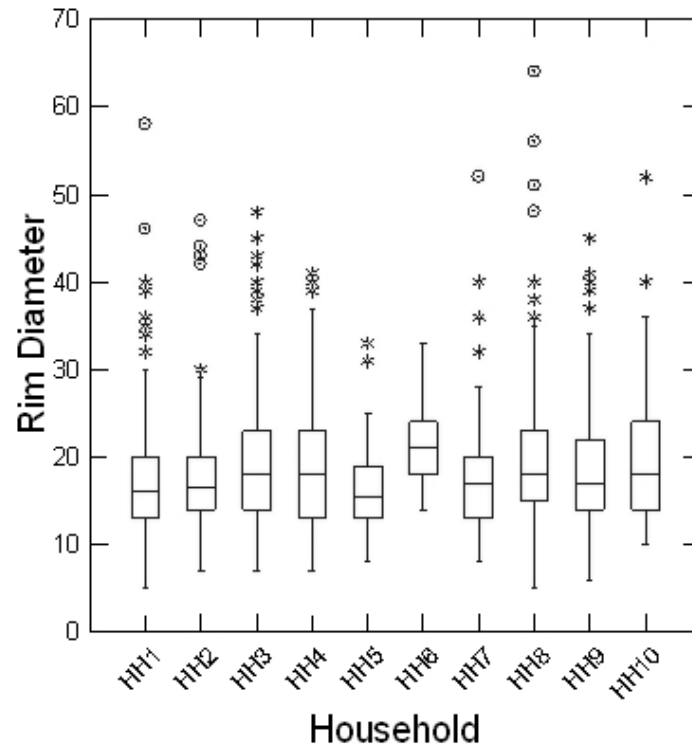


Figure 4.17. Box-and-dot plot of jars rim diameters (all households).

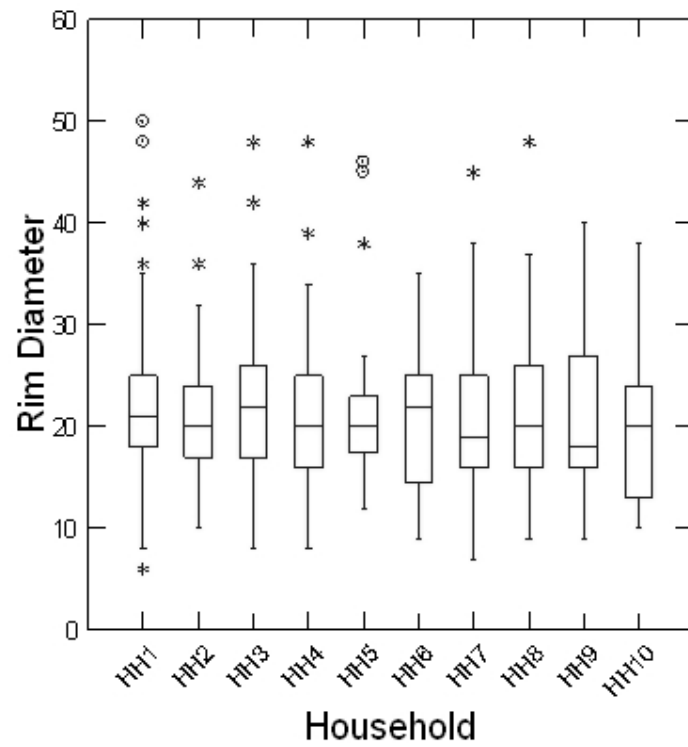


Figure 4.18. Box-and-dot plot of bowls rim diameter (all households).

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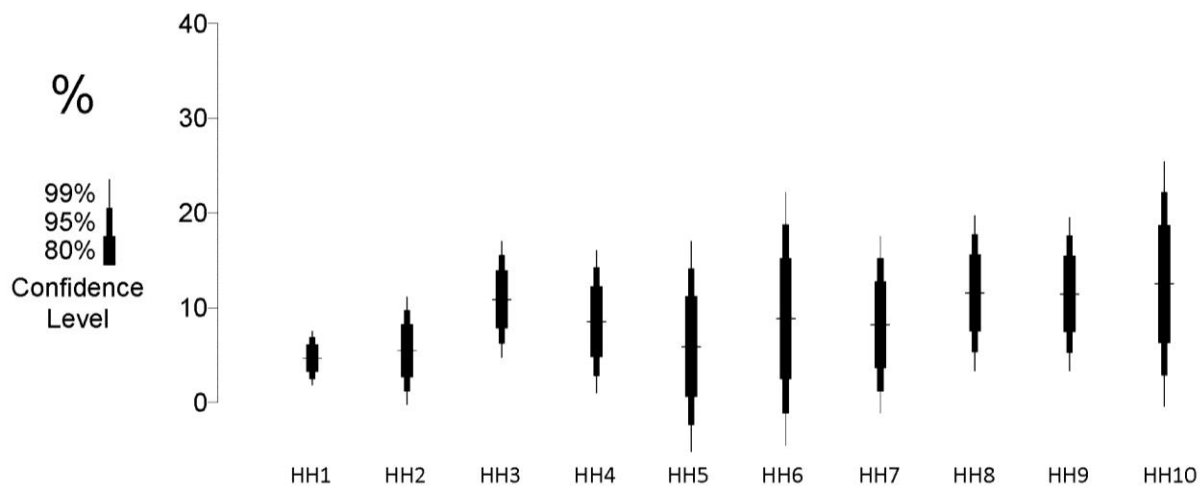


Figure 4.21. Bullet graphs of household proportions of large jars to total jars (Recent Period).

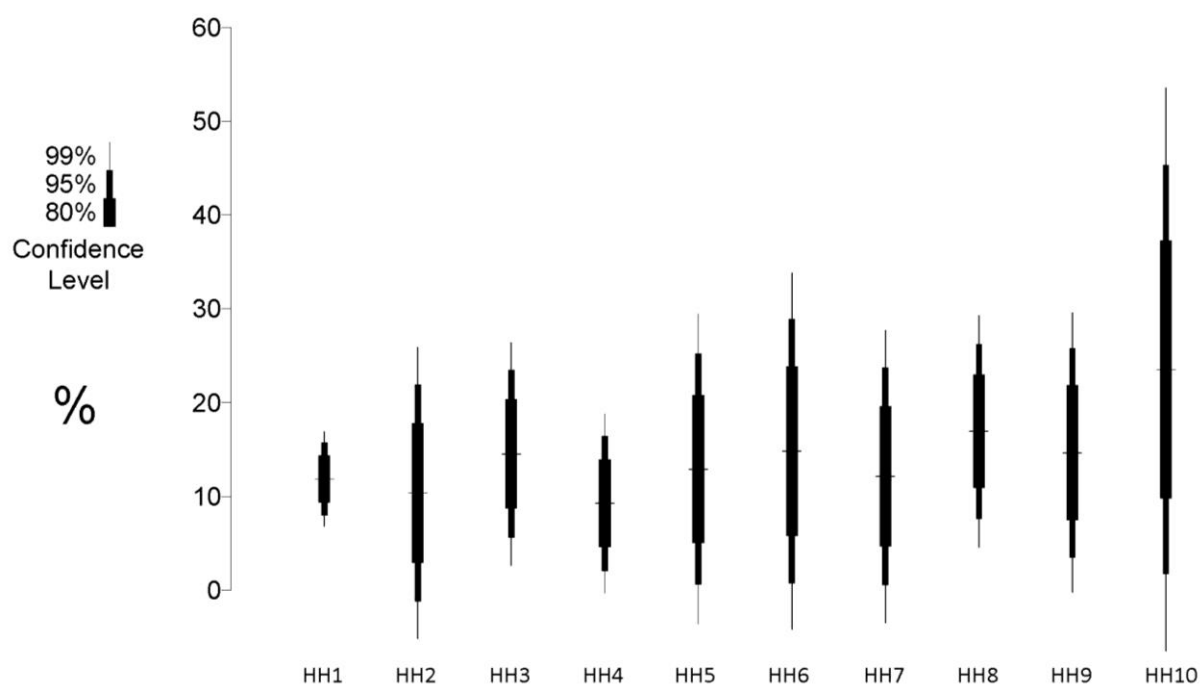


Figure 4.22. Bullet graphs of household proportions of large bowls to total bowls (Recent Period).

Additionally, the uniformity of these two main vessels forms might be related to patterns of standardization in ceramic production. In the neighboring region of the Valle de la Plata in Recent times pottery production is reconstructed as practiced by part-time specialists

under a *household industry* (Van der Leeuw 1977, Costin 1991, 2000, 2007, Feinman 1999, Rice 1991, Spielmann 2002, 2008) which produced amounts of pottery beyond domestic needs as an economic activity along with agricultural production (Taft 1993: 165). In Household 10 at Mesitas a number of features might have been related to ceramic production. In the outdoor area of the dwelling (Figure 3.60) a substantial area of burned soil was found, very similar to features associated with outdoor firing places. In addition, the only two anvils found are associated with this household, and one of them was adjacent to the burned soil feature (Figure 4.23). A piece of refuse from Household 10 also seems to show interlocking pieces of coil (Figures 4.24). The widespread distribution of spindle whorls ($n = 13$) across the majority of households suggests (Figure 4.25) a common household activity at a low level of intensity with little sign of specialization.

The general distribution of lithic debitage (non-utilized flakes, $n = 1113$, and cores, $n = 65$) indicates that all households in the community of Mesitas during the Recent period both produced and used lithic tools, although some households exhibit greater percentages that can be related to some degree of intensification in activities of production. Figure 4.26 shows that the proportions of non-utilized flakes from Households 1, 2, 3 and 10 are high, while the proportions from the other households are lower. These differences decrease gradually from the highest values in Household 3 to the lowest value exhibited by Household 8. The difference in proportions of non-utilized flakes between these households is statistically very significant ($CL > 99\%$) and fairly strong (from about 30% to 60%), but mark a continuum with no very sharp gaps from household to household. On the other hand, the distribution of cores shows an inverse pattern, with core proportions in Households 1 to 4 below those of the other

households (Figure 4.27). Once again, the proportions decrease gradually with no sharp break between the households. Looking closer, in Household 8 there is a relatively high percentage of rhyolite cores (3.8%) (andesite is 4.5%, and basalt 0.8%) associated with a lower percentage of non-utilized flakes of rhyolite (3.8%) (andesite 12% and basalt 9.8%), suggesting expedient production of small amounts of flakes that could have been distributed to neighboring households, while basalt and andesite were more intensively used for Household's 8 own domestic needs. This would explain the scarcity of rhyolite cores in the other households despite the fact that rhyolite artifacts are quite widely distributed. Thus, in the community of Mesitas in the Recent period all households were involved in producing and reducing their own lithic tools but it is likely that some households, such as Household 8, were more intensively involved in core reduction activities than others.



Figure 4.23. Burned soil feature, adjacent (right) is located the fragment of an anvil, Household 10.

(Recent Period).



Figure 4.24. Interlocked pieces of ceramic coil, Household 10 (Recent Period).

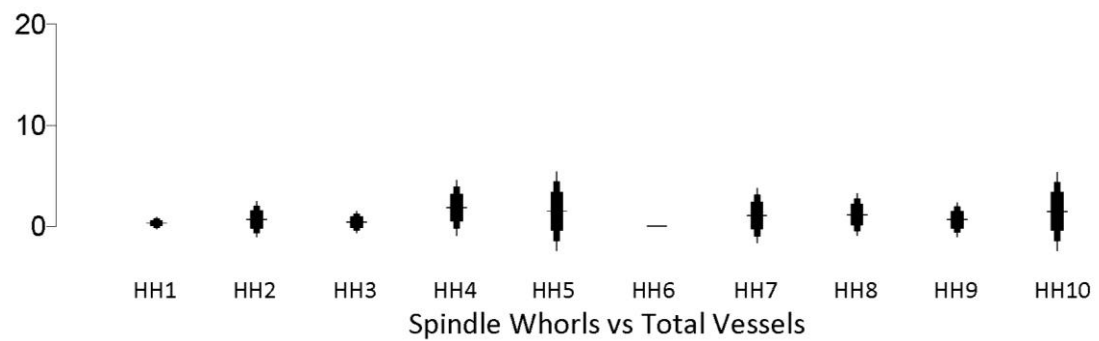


Figure 4.25. Bullet graphs of household proportions of spindles whorls to total vessels (Recent Period).

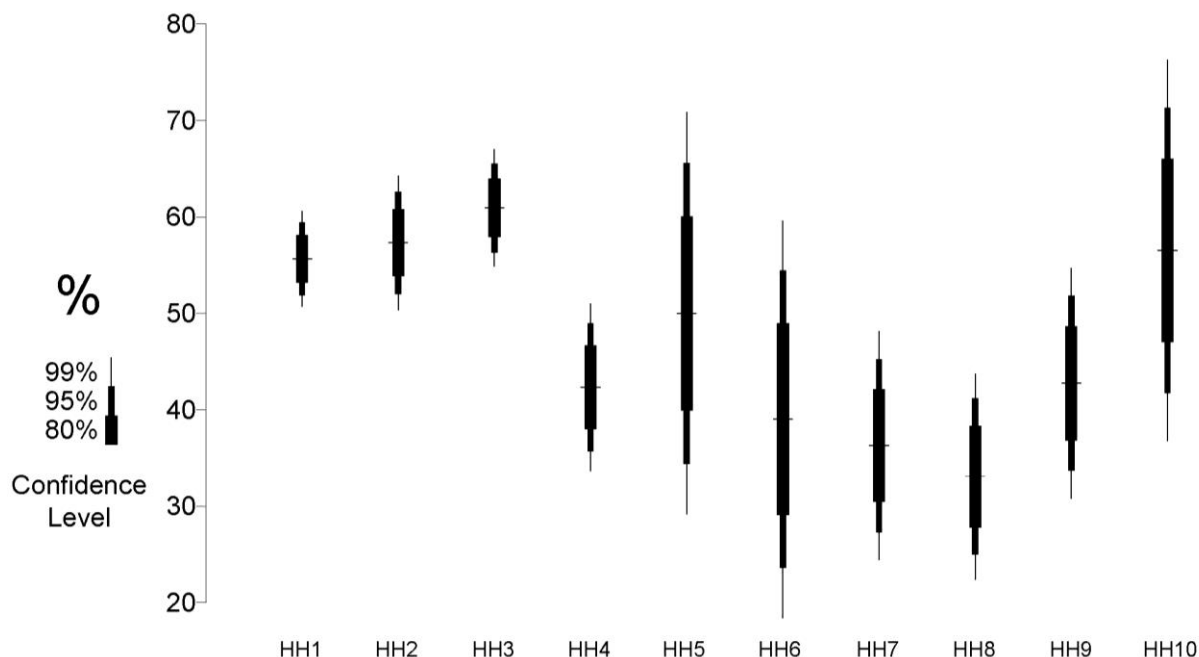


Figure 4.26. Bullet graphs of household proportions of non-utilized flakes to all chipped stone assemblages (Recent Period).

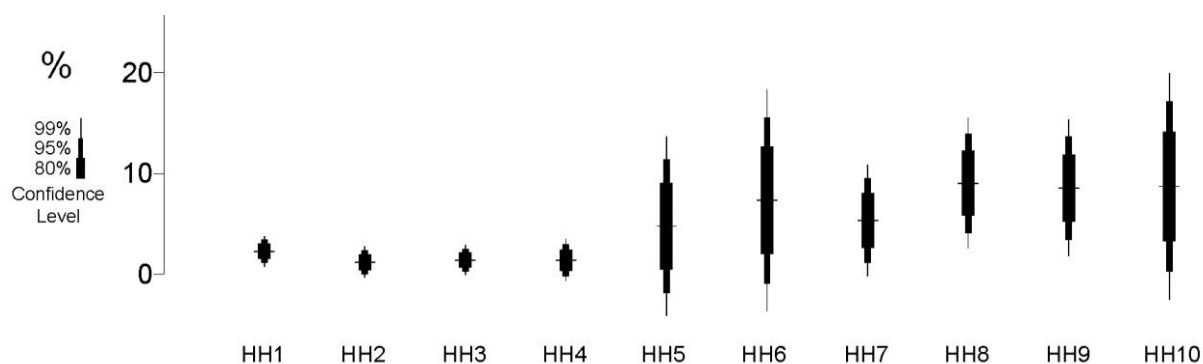


Figure 4.27. Bullet graphs of household proportions of cores to all chipped stone assemblages (Recent Period).

The overall distribution of scrapers ($n = 253$) and cutting tools (knives and *raederas* [$n = 608$]) also shows that all households performed a basic set of activities involving those tools (Figures 4.28 and 4.29). Notched scrapers ($n = 69$) are distributed in the majority of households denoting another extended activity (Figure 4.29); the greater proportions of all of these in some households may have been connected to some level of more intensive activity. For instance,

the differences in proportions of scrapers between Households 6, 8 and 9 and Households 5 and 10 are very significant (CL > 99%) and moderately strong (Figure 4.28); thus these households likely carried out more intensive scraping activities than Households 5 and 10, but not much more than Households 1, 2, 3, 4 and 7. Regarding cutting tools, the differences in mean proportions of knives and *raederas* between Households 4 and 7, that stand out as the highest, and Households 3, 9 and 10, that are the lowest, is very significant (CL >99%) and moderately strong (Figure 4.29); implying that in Households 4 and 7 there were more intensive activities of cutting than in Households 1, 2, 5, 6 and 8, and substantially more than in Households 3, 9 and 10. Activities involving notched scrapers were also carried out in the majority of households. The proportions of these tools are quite similar across several households (Figure 4.30). Household 10 has a slightly higher proportion, although the small sample size from Household 10 means that this cannot be identified with much statistical confidence.

Ethnographic, experimental, chemical, and use-wear evidence suggests a potentially wide range of activities for specific tool type. Skinning and butchering small to medium size animals as well as cutting vegetables require knives that can be produced expediently. Particular processes of skinning also entail *raederas*; and scrapers are useful for working wood and antler, shaving hide and cleaning bones, but the manufacture of this utensil requires a bit more investment of time than knives (Correal 1977, 1990, Dumont 1983, Hayden 1986, Hayden and Cannon 1984, Odell 1980, 1988, Piperno and Holst 1998, Siegel Vaughan 1985, Yohe, et.al. 1991). Notched scrapers could have been utilized to make utilitarian bone or wooden tools with finer points usable as arrows or as needles or as maize huskers (Hayden and Cannon 1984).

Given that the scrapers found in this study were small they were not likely used for scraping hide. The possible special activities at Households 6, 8 and 9 where larger amounts of scrapers were recovered could include working wood and cleaning bones. The special activities practiced at Households 4 and 7 could be related to skinning and butchering game as well as processing plant foods. The generalized use of notched scrapers could mean a very common pattern of making sticks with fine points usable as needles.

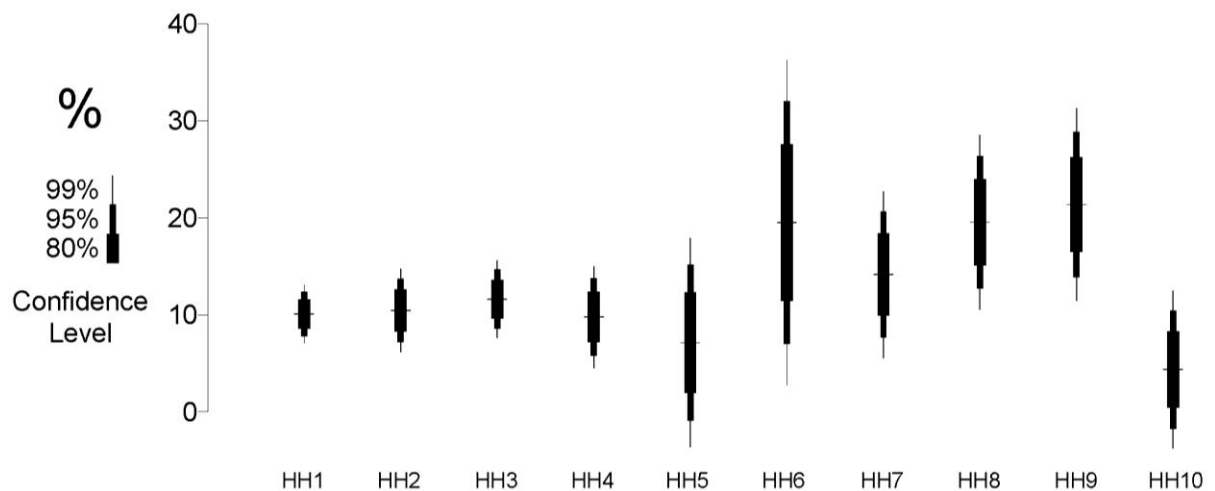


Figure 4.28. Bullet graphs of household proportions of scrapers to all chipped stone assemblages (Recent Period).

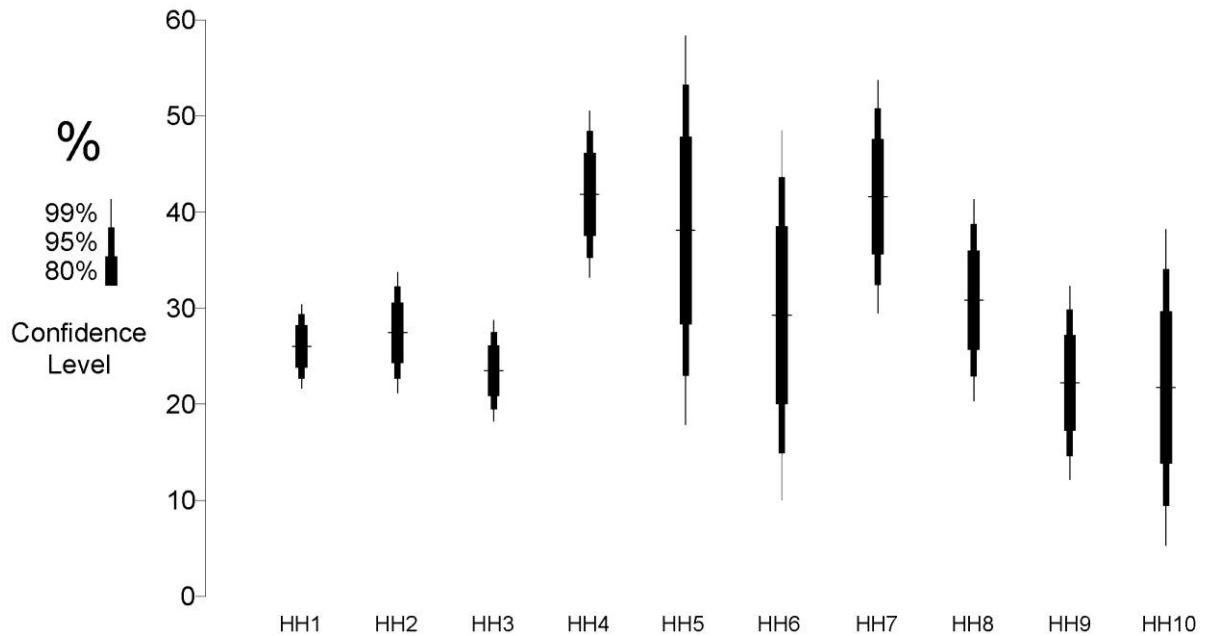


Figure 4.29. Bullet graphs of household proportions of cutting tools (knives/*raederas*) to all chipped stone assemblages (Recent Period).

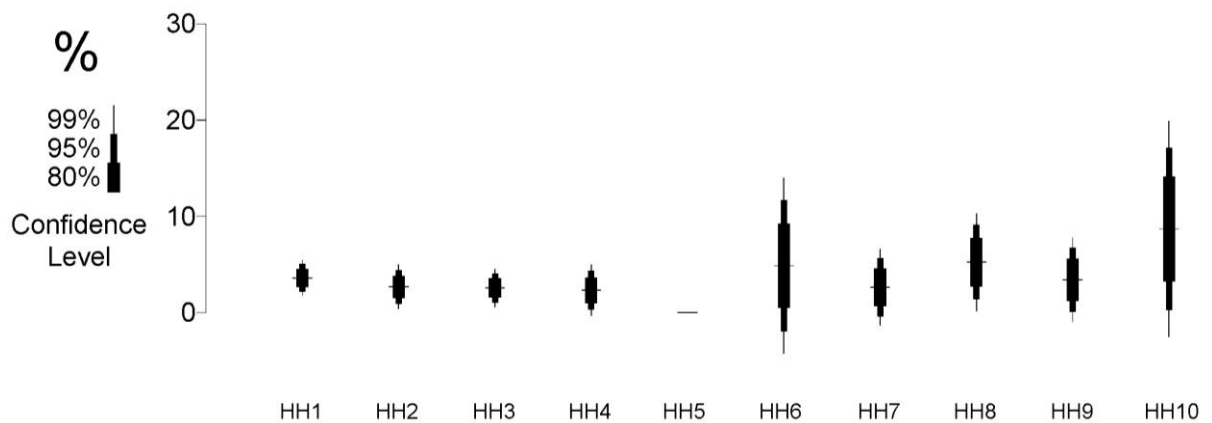


Figure 4.30. Bullet graphs of household proportions of notched scrapers to all chipped stone assemblages (Recent Period).

Linked to these three main types of tools are drills ($n = 14$) that were utilized in Households 1, 2, 4, 8 and 9, hammer stones ($n = 4$) that are part of the assemblages from Households 1, 2 and 4, and multifunctional artifacts ($n = 9$) that are restricted to Households 1

and 4. The percentages of these tools are very similar between the involved households (Figures 4.31) pointing to relatively minor parts of a widespread household activity set. Drills have been functionality assigned to perforate hide, wood, bone and stone in order to manufacture basic goods such as needles and cloth, as well as to make pendants (Arnold 1992, Arnold and Munns 1994, Yerkes 1983, 1989). Drilling may also be related to the manufacture of pendants in Household 1 where a unique sample of them was found (Figure 4.32). An adze (the only lithic tool clearly associated with agricultural work) and a sharpener occurred in Household 8.

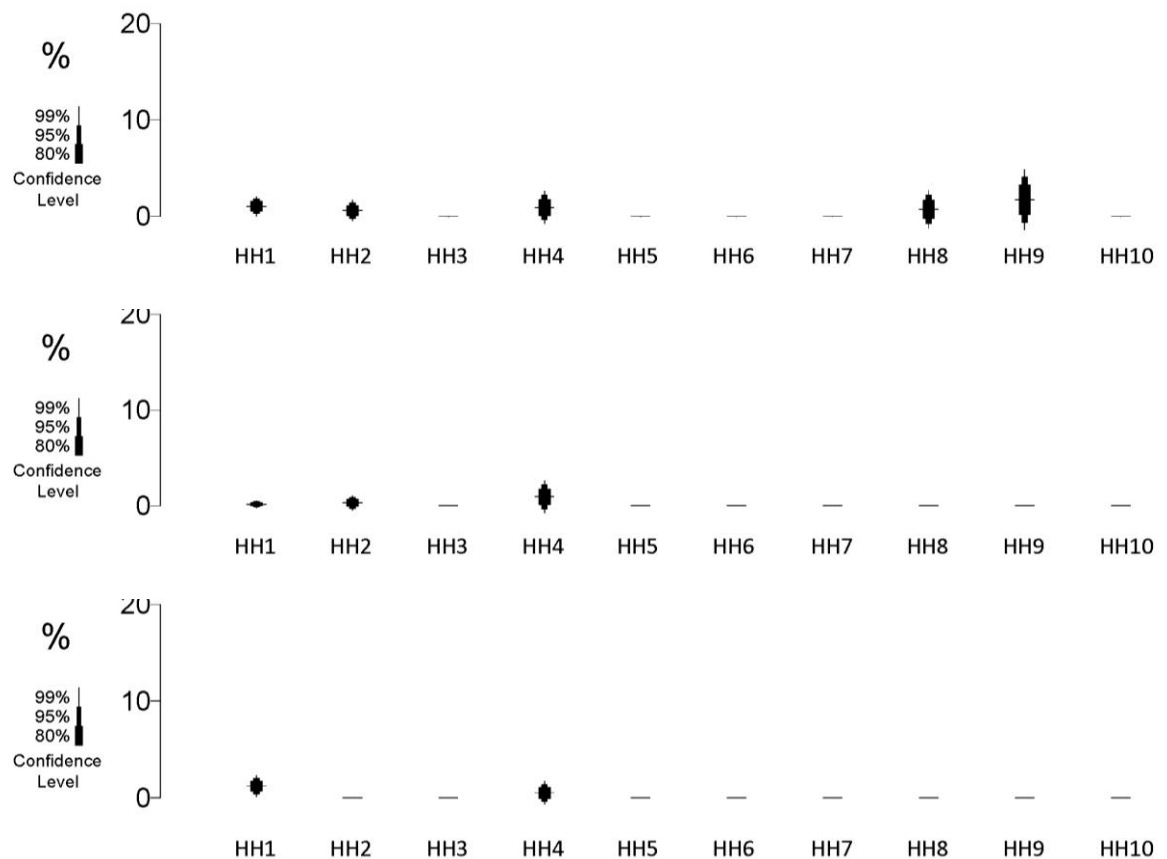


Figure 4.31. Bullet graphs of household proportions of drills (top), hammerstones (middle), and multifunctional tools (bottom) to all chipped stone assemblages (Recent Period).

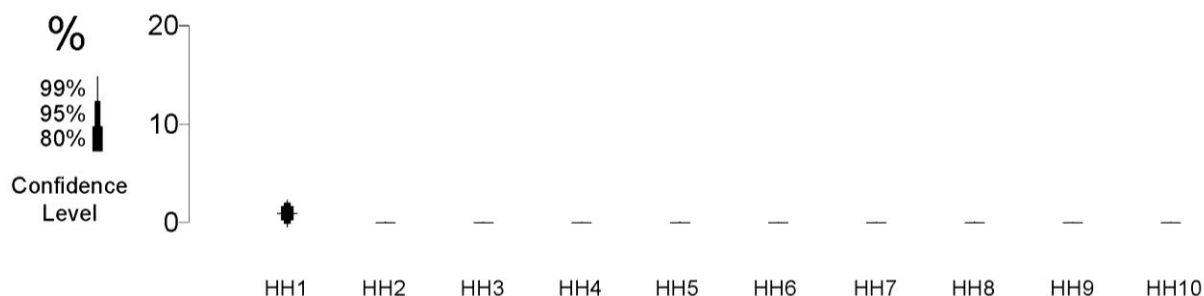


Figure 4.32. Bullet graphs of household proportions of pendants to all lithic assemblages (Recent Period).

The lithic analysis, then, clearly indicates a common set of general domestic activities. Differences in the distribution of scrapers, cutting tools and notched scrapers raised the issue of craft specialization. The production of goods that exceeded domestic needs has been associated with the production of surpluses for exchange (Alchian and Allen 1969: 204; Bates and Lees 1977; Brumfiel and Earle 1987; Castanzo 2009: 138-39; Clark 2007: 25; Costin 1991: 4, 2007; Earle 1982; Haines, Feinman and Nicholas 2004; Hastorf 1990: 155-57; Hirth 2009a: 2, 2009b; Kristiansen 1987, Stein and Blackman 1994, Welch 1991: 134-136). Tool proportions, and thus presumably the intensity of the activities for which these tools were used, do vary from household to household at Mesitas in the Recent period. These differences in economic activities, however, were not very pronounced from household to household. Differences in productive activities between households are thus identifiable but not very strong. These differences, while not of great strength, nonetheless show interesting relationships to social status, with somewhat more specialized activities appearing in low ranking Households 9 and 10 as well as high ranking Household 7; but the families from Households 4, 5, 6 and 8, placed in the middle of these two groups, also show some degree of economic specialization. Households 2 and 8 are especially interesting because of their proximity to high ranking

Households 1 and 7, respectively. The presence of hammers and drills and higher percentages of obsidian (mainly used as knives) in Household 2, and the higher percentages of chert (predominantly used as scrapers), cores, scrapers and notched scrapers in Household 8 suggest the [possibility of specialists providing goods and services to high ranking families. The lesser degree of specialized production visible at Households 4, 5, 6, 9 and 10 seems more likely that of independent specialists, as was already noted elsewhere with ceramic production (Taft 1993); whereas Households 2 and 8 would be what have been called attached specialists (Arnold and Munns 1994, Bermann 1994:17; Brumfiel 1987; Brumfiel and Earle 1987: 5-6; Costin 1991: 11, Clark 1995; Clark and Parry 1990: 291-293; Earle 1987, 2002: 129; Hirth 2009a: 2, 2009b; Rice 1991: 263-65; Sinopoli 1988: 581; Stein 1996, Underhill 2002: 8). Both practices were used on a very moderate scale by part-time specialists.

The distribution of ground stone tools follows a pattern similar to chipped stone artifacts. Tools for grinding purposes (metates, $n = 13$; manos, $n = 27$; grinders, $n = 9$) and small cobbles with little worn surfaces ($n = 66$), for example, are widely distributed across all households, while some other artifacts like axes ($n = 3$), spheres ($n = 2$), anvils ($n = 2$) and hammers ($n = 7$) are restricted to certain households. The great majority of these tools were made in basalts easily available in the region, indicating that their production was local.

In spite of the fact that manos and metates have a clear association with hard grain processing (commonly maize) while grinders are normally associated with soft vegetable processing or plant maceration (Correal 1990: 57, Correal and Pinto 1990: 83, Wright 1994), they were combined into a single category in order to get more meaningful comparisons and to explore differences in grinding activities between households. All grinding artifacts were absent

from Households 5 and 9, while Household 6 exhibited the greatest percentage. The differences in proportions are very significant (CL >99%) and fairly strong, ranging from 0% to 22% (Figure 4.33). The general distribution of these tools suggests a pattern of generalized use, but the greater proportions in Household 6 and possibly Household 10, may show slight intensification of grinding activities there.

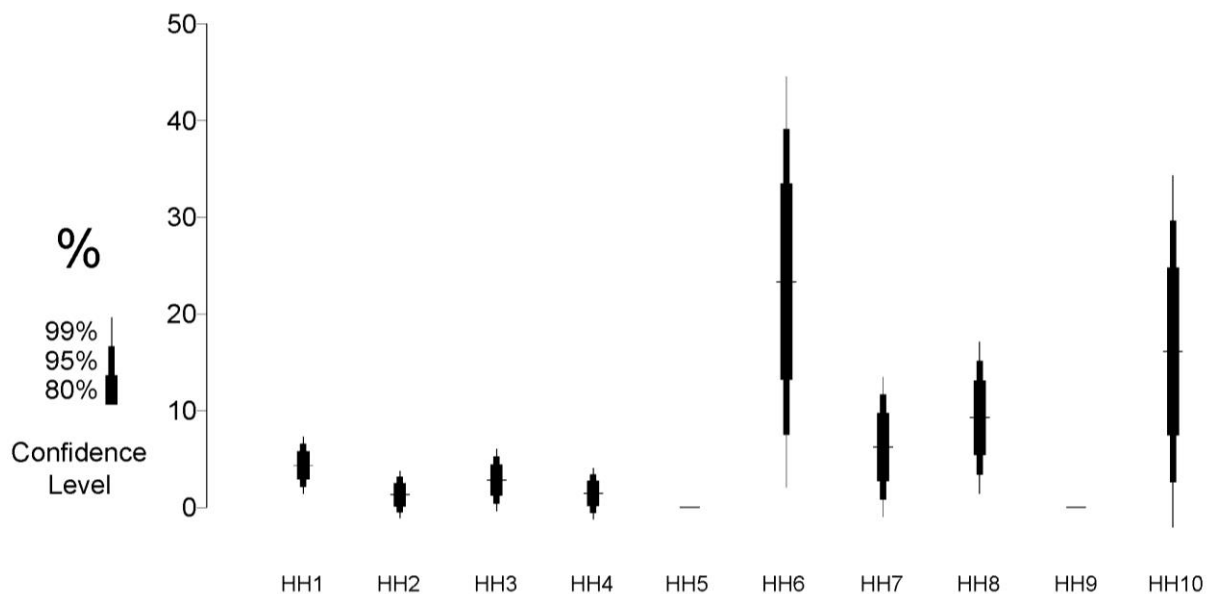


Figure 4.33. Bullet graphs of household proportions of grinding tools to all lithic assemblages (Recent Period).

Small river cobbles having at least one polished surface are found in the majority of households. These objects could have been associated with the process of ceramic manufacture, although they may have been used in rather different tasks. The differences in proportions of these objects between Household 10, which shows the highest proportion overall, and Households 1, 2, 3, 6, 7, 8 and 9, that display the lowest percentages is very significant (CL >99%) and moderate (10%-13%), while the difference from the percentage of Household 4 is significant (CL = 95%) and weak (Figure 4.34). These greater percentages in

Household 10, and to a lesser extent in Household 4 might relate to ceramic production. This would be especially true of Household 10 where other indications of ceramic production have been found (burned soil features and two unique pieces of anvils). The proportions of a few other tools like axes, spheres (Figure 4.35), polished hammers and anvils or blocks of hard basalt with a flat polished surface (Figure 4.36) do not show substantial differences between the households in which they are present; but spheres whose function is unknown and polished hammers clearly not used for flint-knapping only occur in Households 1, 2, 7 and 8; axes were only found in Households 5, 9 and 10, and anvils belong to Household 10.

The ground stone artifact data indicate that in the community at Mesitas during the Recent period a number of activities were practiced more intensively by some households. Ground stone tools for processing grains seen in the majority of households are surely related to widespread daily activities which may have been slightly more intensive in Household 6. Similarly, in Household 10 higher proportions of polishing stones and anvils are likely related to pottery production. Exclusive activities that required rare objects like spheres and polished hammers took place in the high ranking Households 1 and 7 and were also associated with Households 2 and 8. Activities such as clearing forest, timbering and/or splitting firewood using heavy-duty cutting implements like axes occurred on a small scale in Households 5, 9 and 10. In general terms, high levels of activity or intensification cannot be assigned to any household on the basis of ground stone artifacts. Aside from the occasional activities carried out in high ranking Households 1 and 7 that involved rare objects such as spheres and hammers, no other economic activities involving ground stone tools show a pattern of intensification there. The

presence of those rare tools in Households 2 and 8 reinforces the idea of attached specialists producing goods and services for high ranking families, although on a small scale.

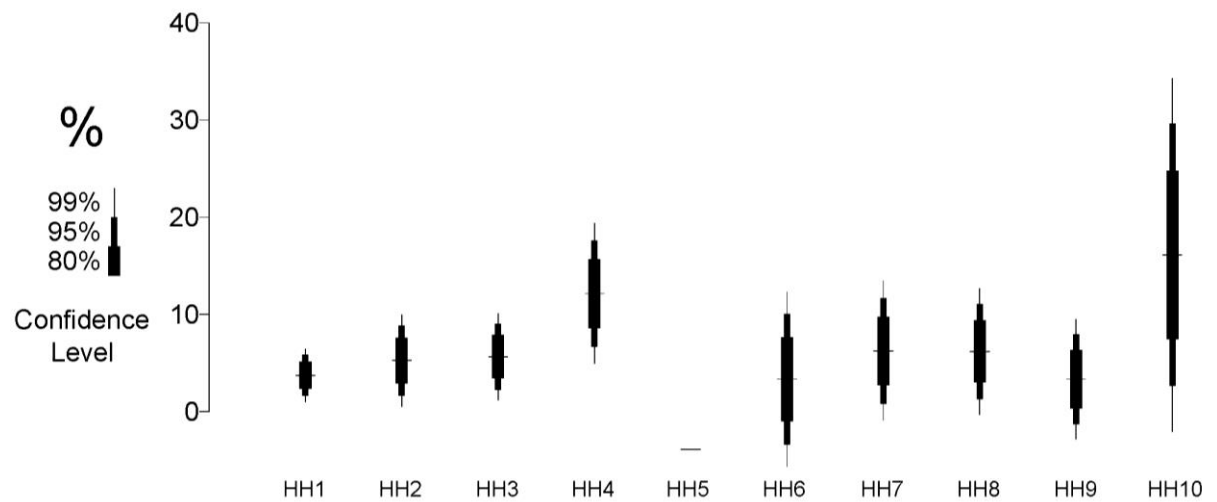
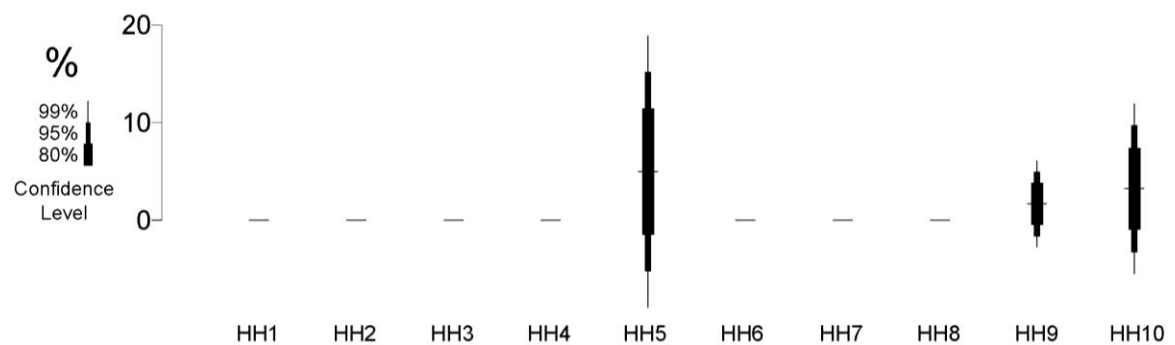


Figure 4.34. Bullet graphs of household proportions of river cobbles (polishing stones) to all lithic assemblages (Recent Period).



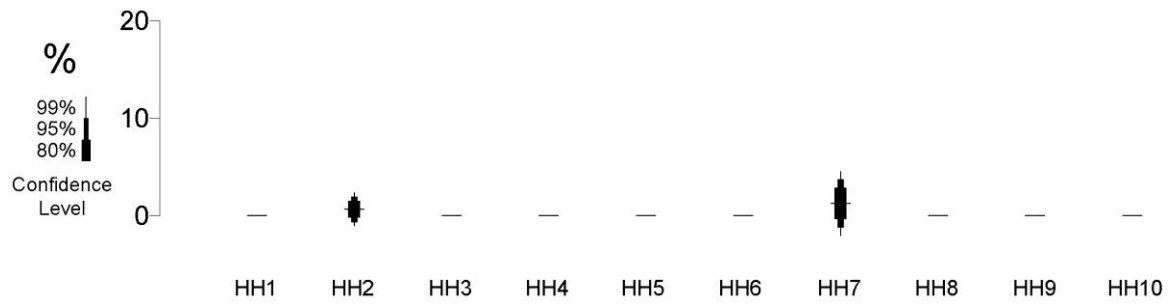


Figure 4.35. Bullet graphs of household proportions of axes (top) and spheres (bottom) to all lithic assemblages (Recent Period).

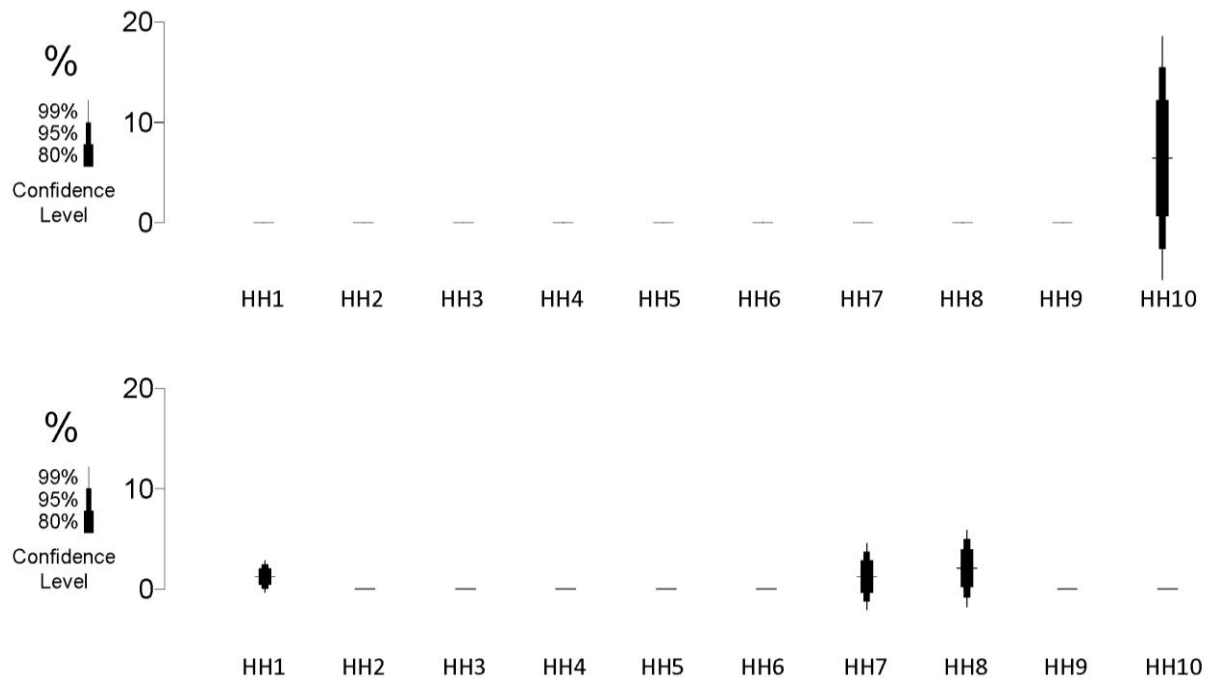


Figure 4.36. Bullet graphs of household proportions of anvils (top) and hammers (bottom) to all lithic assemblages (Recent Period).

Table 4.1. Bowl to Decorated bowls ratios, and jar to decorated jars, all households (Recent Period).

| Ceramic ratios, ten households (HH) | | |
|-------------------------------------|-----------------|---------------|
| HH | Bowl : Dec-Bowl | Jar : Dec-Jar |
| 1 | 1 : 1.5 | 1 : 1.7 |
| 2 | 1 : 0.6 | 1 : 0.6 |
| 3 | 1 : 0.6 | 1 : 1.6 |
| 4 | 1 : 0.5 | 1 : 0.7 |
| 5 | 1 : 0.6 | 1 : 1.8 |
| 6 | 1 : 0.7 | 1 : 2.4 |
| 7 | 1 : 1.2 | 1 : 6.6 |
| 8 | 1 : 0.8 | 1 : 2.2 |
| 9 | 1 : 0.5 | 1 : 1.4 |
| 10 | 1 : 1.1 | 1 : 3.4 |

Table 4.2. Basic statistics for jars and bowls, all households (Recent Period).

| Basic statistics of Jars rim diameters (all households) | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | HH1 | HH2 | HH 3 | HH4 | HH5 | HH6 | HH7 | HH8 | HH9 | HH10 |
| N. of Cases | 365 | 110 | 210 | 106 | 34 | 35 | 61 | 104 | 105 | 49 |
| Int.Range | 7.00 | 6.00 | 9.00 | 10.00 | 6.00 | 6.00 | 7.00 | 8.00 | 8.00 | 10.00 |
| Median | 16.00 | 16.50 | 19.00 | 18.00 | 15.50 | 21.00 | 17.00 | 18.00 | 17.00 | 18.00 |
| Basic statistics of bowls rim diameters (all households) | | | | | | | | | | |
| | HH1 | HH2 | HH 3 | HH4 | HH5 | HH6 | HH7 | HH8 | HH9 | HH10 |
| N. of Cases | 270 | 29 | 87 | 70 | 31 | 28 | 33 | 65 | 41 | 18 |
| Int.Range | 7.00 | 7.50 | 8.00 | 9.00 | 5.75 | 10.50 | 9.50 | 10.00 | 11.50 | 11.00 |
| Median | 21.00 | 20.00 | 22.00 | 19.50 | 20.00 | 22.00 | 19.00 | 20.00 | 18.00 | 20.00 |

4.3 SUMMARY

The results of this study point to Households 1 and 7 as the highest status and wealthiest families. Differences in wealth between these high ranking households and low ranking ones were indicated by greater amounts of decorated pottery (jars and bowls primarily) used for every day purposes, by larger amounts of energy invested in construction and

maintenance of larger dwellings, by access to luxury objects from non-local sources for body display, and by access to greater amounts of finer and harder raw materials for lithic tool manufacture. Whereas Household 1 had more access to obsidians and less to chert, Household 7 presented an inverse picture.

The distribution of decorated items, jars and bowls, as well as chert and obsidian, suggests that Households 2 and 8 may have been linked to high ranking families as attached specialists and providers of services and goods. Household 2 was especially involved in activities that required obsidian knives, while Household 8 was especially engaged in activities that required scrapers. Special objects like spheres and hammers were also used on a smaller scale and with less intensity. Food storage and cooking were also indicated for both households. It is likely that Households 9 and 10, which also displayed specialized production, were also providing goods and services to high ranking families considering they were residing at a distance of about 55 to 60 m away from the elite compound (Figure 3.1). These two units were engaged in activities that used scrapers, notched scrapers and drills. In Household 10 soil features and lithic and ceramic findings indicate pottery making. Located away from this area are Households 4 and 5 whose activities required cutting tools (e.g. knives and *raederas*). In Household 6 people especially used high proportions of scraping tools, and in Household 3 intensive cooking and storage activities took place. At the same time, the small variety of ceramic forms and tool kits show the domestic economy was organized similarly in both higher and lower ranking status households in Recent times, where every household in the community used pottery, ground stone tools and chipped stone tool kits. The low counts of spindle whorls

and their extended distribution in the community also point to spinning as a domestic crafting activity with no signs of specialization.

In the Recent period within the central community at Mesitas there was some degree of economic interaction and interdependence (complementarity) among families at various levels of the social hierarchy. There were different degrees of specialization in different households specialists, but no household appears to represent full-time specialization. The social and economic positions of high ranking families seem to have been reinforced by attached specialists, whose production was more focused on the production of basic items rather than the production of luxury items (e.g. pendants and other items).

5.0 CONCLUSIONS

Larger excavations of ten residential units from the Recent period (900-1530 AD) covered up to 640 m². They were conducted in the central community at Mesitas, the largest and the most politically influential ancient central community of the whole Alto Magdalena chiefdoms which flourished during the previous Regional Classic period (1-900 AD). Ceramic inventories, chipped and ground stone tools and subsurface features allowed the reconstruction of domestic activities as well as to document changes in the patterns of wealth, status and craft specialization and their relation to the new hierarchical foundations of the Recent period. The ceramic and lithic assemblages denote socioeconomic differences between households during the Recent period at Mesitas community. The nature of social status, the pattern of wealth accumulation and the basis of social power in itself changed from Regional Classic to Recent periods. The more materialistic changes in the basis of power observed in Recent times through increased patterns of wealth accumulation and distribution, status display and craft specialization behavior had its roots in the Classic period. The new social, economic, and demographic factors that helped to model the political sphere during the Recent period at Mesitas central community occurred since that previous Regional Classic period, although on a smaller scale as we will see in this chapter.

Previous archaeological data collected by Victor González (2007) have documented the presence of 75 households from the Regional Classic period located in an area of 2.75 km² at Mesitas central community. They formed a general layout of families displaying differences in hierarchies between some placed in a core zone to some others located in a peripheral zone. Forty-one of those units were quite nucleated, forming the core zone (n= 41), the other thirty-four units were more dispersed surrounding the core in the peripheral zone (n= 34). The core households were aggregated around three discrete groups of elite families demarcated by the monumental areas of the Mesitas A, B and C (Figure 2.1); based on their proximity to those monumental burials, several households seem to occupy elite status during the Regional Classic: Households 63 from Mesita A, Households 68 and 69 from Mesita B, and Households 75 and 76 from Mesita C (González 2007: 115). These formed relatively tight clusters with additional households; for instance, Households 64, 65, 66, 67, 70 and 71 clustered around Household 68, one of the most significant households of all. These households formed one dense cluster which shows the seeds of wealth, status behavior and craft specialization. Household clusters placed in the periphery also formed quite compact groups, but with reduced number of units like Households 19 to 24 and Households 32 to 34 also used here for analytical purposes.

In the Mesitas central community during the Classic period, from the total ceramic assemblages recovered (n= 21,528) less than 1% corresponded to decorated pottery (21.2% was incised, 28.8% was slipped, 19.9% were tripod supports, and 30.1% was other decoration, including appliqué, impressions and elaborated rims). Often one household within a small cluster of households shows higher proportions of status indicators. Interestingly, some

households at the periphery display higher percentages of decorated items, a pattern visible ever since the very beginning of the sequence during the Formative 1 (González 2007:107-115). All core households have decorated ceramics; unlike some households in the periphery which display no proportion. These differences are observable but weak and of relatively little statistical significance (Figure 5.1). Also, households at the core often have tripod vessels, a type of item almost nonexistent in the periphery zone. This is an indication of the emergence during the Regional Classic period of an increasing level of social differentiation between “a developing elite and a commoner population” (González 2007:117).

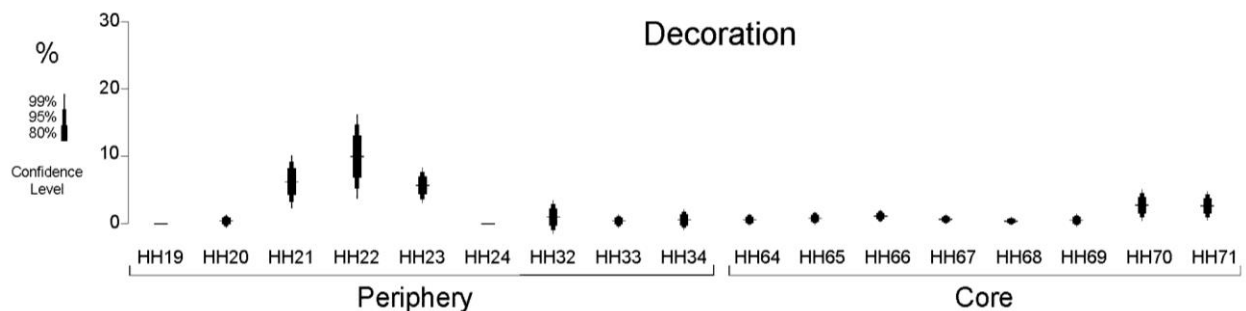


Figure 5.1. Bullet graph of core and periphery household's proportions of decorated ceramics at Mesitas central community (Classic period).

Differences are also observable in percentages of jars and bowls, as well as in cups and plates between core and periphery households. Generally, differences in proportions of such items between core households and periphery households are weak and not very significant, but there is a tendency towards a wider distribution of bowls and plates within the core households than in the periphery. There are, thus, differences in status behavior between these two larger social categories; a social pattern that has been observed even from the Formative 1 that was fully formalized in the Formative 2 (González 2007: 105-109). However, the

distribution of those household possessions suggests that the usual markers of status became less important during the Regional Classic period and were less centered in ceremonialism, communal gatherings and/or ritual. There was a stronger emphasis on the celebration of great ancestors and their achievements were clearly visible in the funerary monuments of the Mesitas A, B and C. Elites may have engaged in new ritual practices, and had a growing involvement in craft production, and in external networks of exchange providing some incipient economic benefits (González 2007:115-117). Household 68 stands out as of especially high status, not because of high proportions of decorated ceramics or other items of status display perhaps connected with religious power (Drennan 1995, 2000, 2006, González 2007, Llanos 1995, Sánchez 2004). Its main distinguishing characteristic is a more elaborate and luxurious dwelling unit, displaying stone slabs on the floor and a rock-lined path (González 2007: 119). The production and use of luxury items for body display such as hexagonal beads and oval to rectangular pendants during the Classic period are related to high ranking people because of their abundance in Households 63 and 68 from Mesitas A and B, respectively (González 2007: 101).

The Recent period saw changes in some of these trends but continuity in others. More types of decorated ceramics became manufactured. The proportions of decorated items increased as well; out of 23,676 recovered sherds 2,799 (11.8%) were decorated (of which 24.7% were finger impressed rims, 27.4% were incised, 6.4% had impressions, 4.4% had apliqués, 22.0% were painted, 5.6% had corrugated decoration, and 9.2% displayed more than one of these forms of decoration). The proportion of decorated pottery in Recent households ranges from a low of 4 % to a high around 20% (see Figure 4.1). Thus, a household at the top of

this scale has a proportion of decorated ceramics around five times higher than a household at the bottom, and these proportions come with a high level of statistical confidence. Figure 5.1 shows that the proportion of decorated pottery in Regional Classic households ranges from none to around 6% with one household reaching as high as 10%. The difference between the top of the scale and the bottom of the scale with regard to this wealth indicator, then, actually seems greater in the Regional Classic. Just looking at how the proportion of decorated sherds varies across households would not suggest that wealth differences between households were greater in the Recent period than in the Regional Classic period. Proportion of decorated sherds did not, however, correspond well to other indicators of wealth or status during the Regional Classic period. This variable became a much more useful indicator of higher social position during the Recent, in that it formed a more consistent package with other indicators, as discussed in Chapter 4. It is thus necessary to look more broadly at the complex of characteristics pointing to higher social position in both periods.

Ceramic forms at Mesitas in the Recent period are, in general, very reduced, although some families exhibited a wider range of domestic possessions like bottles, cups, plates and vessels with handles (Figures 4.7 and 4.8) than others did. Unfortunately the samples of sherds identifiable to vessel form for the Regional Classic are too small to make possible direct comparisons of the household proportions of these special forms. The most abundant vessel forms in both Regional Classic and Recent, however, were bowls and jars. For the Recent period, the proportion of jars in the ceramic assemblage varied from around 50% to 75% across households (Figure 4.10). There were even stronger differences between Recent households with regard to bowls; in some households bowls were less than 20% of the ceramic assemblage,

whereas in others this proportion was more than twice that (Figure 4.9). During the Regional Classic, bowls were generally more abundant than they were in the Recent period, but the generally higher status households in the core of the community were completely indistinguishable from those in the lower status peripheral zone in terms of proportions of either bowls or jars. A new distinction in household food-serving activities had thus emerged in the Recent period, one that has often been suggested to relate to wealth differences.

The proportions and distribution of finer raw materials such as obsidian and chert in opposition to coarser raw materials like basalt, andesite, slate, and rhyolite for manufacturing chipped stone tools have also been regarded as indicators of wealth. During the Classic period, the households at Mesitas tended to heavily use coarser materials (51%) and chert (40%) rather than obsidian (9%), but this latter material and poor quality ones presented higher densities in the core zone than in the periphery and gradually gained more importance than in the previous Formative times. Chert denoted an inverse pattern being substantially more important in the peripheral zones and of diminished importance along the sequence (González 2007: 89); it was chiefly a resource during Formative 3, when higher densities of chert were present in both households from the core (like Household 39) and from the periphery, as in the case of Household 12 which had an unusually high density of 12 chert pieces per m² ($t = 25.4$, $p < 0.0005$) (González 2007: 93). From a sample of 2,137 chipped stone items from the Recent period households at Mesitas, 1,672 (78.2%) were of coarser materials, 311 (14.5%) were made of obsidian, 104 (4.9%) were made of chert, just 11 items (0.5%) were made of quartz, and 39 (1.8%) were unclassified. The proportion of high quality raw materials in Recent period households ranges from a low of about 10% to a high of about three times that (Figure 4.3).

This marks a substantial difference from the previous Classic period when generally lower status households in the peripheral zone and higher status ones in the core of the community had almost exactly the same proportion of better quality lithic raw materials (González 2007: 89-90).

Historically, the selection of raw materials by the household units at Mesitas was related to differences both in wealth and in activities. Since the beginning of the sequence, materials like chert and obsidian were used in tools of certain kinds; the high density of more than 12 pieces/m² of chert in Formative 3 Households 12 and 39 (compared to a mean of 3.66 pieces/m², $n= 76$, $sd= 2.86$), suggests heavy use of that material in scraping activities in those two zones of the central community (González 2007: 93-95). In the Recent period, chert was particularly heavily used as scrapers in Household 8 lower status household adjacent to the high ranking Household 7; of the entire assemblage of artifacts of chert coming from Household 8 ($n= 8$), 50% are scrapers. But chert was also intensively used as knives in several other households; the percentage of knives from the total pieces of chert in Household 4 ($n= 5$) is 60%; in Households 2 ($n= 12$), 6 ($n= 2$) and 9 ($n= 4$) 50%; and in Households 3 ($n= 14$) and 7 ($n= 20$) 36% and 35%, respectively. Higher densities of obsidian (more than 5 pieces per m²) clustered at the core Households 37, 39, 60 and 66 in the Classic period suggested that some units were engaged in some kind of economic specialized activities and/or they were slightly wealthier than the rest (González 2007: 91). But elite Households 63 from Mesita A, or 68 from Mesita B, or 76 from Mesita C, or 2 from Alto de Lavapatas do not have high densities of obsidian. Household 60 is part of a cluster including Household 63, Household 66 is in a cluster including Household 68, and the other two are associated with households in the middle of the

monumental sites of Mesitas A, B and D. A rather similar pattern of distribution of higher percentages of obsidian has been observed in Recent times. Higher proportions of this material occur in high ranking households and adjacent lower-status households. The vast majority of obsidian objects in these households are cutting tools (knives and *raederas*). This makes us think that also during the Recent period obsidian was used for specific economic activities; cutting tools in Household 1 (n= 27) represent 26% (67% was debitage); in Household 2 (n= 14), 19% (73% was debitage); in Household 7 (n= 6), 50% (42% was debitage); and in Household 8 (n= 6), 40% (47% was debitage). Obsidian artifacts show an incipient tendency to be extensively used in households placed in the vicinity of high ranking households during the Classic period; a pattern also clearly observable during the Recent period. It is clear that obsidian was fundamentally and intensively used as cutting tools because of the proportions of artifacts and debitage.

The association of higher densities of other tools with some households located near the high ranking units is also noted in both the Classic and the Recent periods. During the Classic, they were associated with Household 68 from Mesita B, with Households 66 and 69 having greater densities of rare objects like spheres of andesite, possibly related to ceramic production, because these two units belonged to a group of seven households that have greater mean densities of polishing stones (mean=0.33 pieces/m², n=7, sd=0.27), in comparison to households which have very few spheres (mean=0.15 pieces/m², n=69, sd=0.20, df=74, p<0.05). Particularly high densities of *metates* were found in Household 66 (0.3 pieces/m²); a high concentration of kiln wasters were found in the Household 71 (n= 2, 14.3%), a few other wasters were located at Households 68, 69, and 70 (each one having a single piece); special

ornaments of restricted use like hexagonal beads were concentrated in Households 68 (n= 3, 33.3%), and single oval pendants were recovered at Households 30, 33 and 66 (n= 1, 16.6% for each one). In addition to Household 63 from Mesita A, Households 56, 60 and 62 possess larger quantities of spheres (0.2 pieces/m²); greater densities of *metates* came from Household 60 (0.2 pieces/m²), and Household 62 is part of a cluster of six core households with 36% of all the polishing stones recovered; Household 63 had a low density of kiln wasters (n= 1, 7.1%) and a single oval to rectangular pendant (n= 1, 16.6%). Objects like cylinders and chisels that could be related to goldwork were found only at Households 68 (n= 1, 100%) and 70 (n= 1, 50%). Household 76 from Mesita C is associated with Households 74, displaying a low density of kiln wasters (n= 1, 7.1%); Household 72 which had 36% of polishing stones, and Household 75 that displays moderate densities of polishing stones (0.5 pieces/m²), *metates* (0.1 pieces/m²) and lithic flakes (10 pieces/m²) (González 2007: 95-103). Further away from these households, and not clearly associated with any high ranking household but still within the core zone of the community, are Households 37, 44, 50, 55, 57 and 58, possibly engaged in the specialized production of ceramics based on their higher densities of polishing stones (1.0-1.5 pieces/m²) and spheres (0.2-0.3 pieces/m²) and the concentration of kiln wasters (a single piece per household). Household 58 shows particularly high density of *manos* (0.4 pieces/m²), and Household 43 displays a high density of *metates* (0.3 pieces/m²); all of them were possibly related to Household 39 one of the households located away from the monuments area which displayed greater densities of wealth and status elements like obsidian, chert and tripod supports (González 2007: 87-117). Previous archaeological studies conducted at Mesitas and in smaller communities (Blick 1993, Duque and Cubillos 1979, 1983, 1988, 1993, Cubillos 1980,

1986, González 2007, Llanos and Ordoñez 1998, Llanos 1995) have suggested that during the Regional Classic period statue carving may have been a specialized activity. Small quantities of gold items, hexagonal and circular beads and pedestal cups are taken to be wealth and social status objects. The nature of these objects, their scarcity, and their manufacture in households adjacent to elite suggest some degree of craft specialization in the production of luxury goods by attached specialists; the production of these luxury goods was fully embedded with symbolism which is in line with the ideological bases of power that characterized that period.

The analysis of lithic raw material in the 75 households from the Regional Classic period supported the idea that economic activities in the core were likely different from the activities in the periphery (González 2007: 89). The difference in chipped stone densities between households in the core and households in the periphery is strong and very significant ($t= 5.3$, $df=74$, $p<0.005$), and the difference in proportions of chipped stone pieces as part of the total number of artifacts is more moderate but significant ($t= 2.4$, $df=74$, $p<0.05$), indicating that household activities using lithic tools were more intense in the core than in the periphery (González 2007: 87). Both periphery and core households exhibited greater standardization of ceramic vessel forms compared to the previous Formative periods, as well as an increasing usage of jars. During the Classic period the usage of jars ($n = 248$, 37.6%) surpass any other type of vessels (plates = 93, 14.1%; cups = 32, 4.8%) and shows proportions near to that of bowls ($n= 287$, 43.5%) (González 2007: 115). The evidence for the Regional Classic, then, suggests a modest degree of craft specialization involving the production of luxury items for elite consumption and possibly also more utilitarian goods such as pottery. But the evidence does

not indicate that craft production was centrally controlled or monopolized by a single elite group during the Classic period (González 2007: 99, Taft 1993: 155).

It seems that Recent elite households were engaged in part-time specialized production of utilitarian items, more than luxuries. This appears to have taken the form of low ranking households where utilitarian items were produced adjacent to high ranking households. It can be suggested that the higher ranking household were patrons of the craft activities in a form of what has sometimes been called 'attached specialization.' Patrons, from Households 1 and 7 supplied good quality materials (such as obsidian and chert) for the manufacture of knives in Household 2, and scrapers in Household 8, thus facilitating the production of the goods for which these lithic tools were especially used. It is possible then that Households 1 and 7 benefited economically from the craft production of Households 2 and 8. A connection between craft production and higher status was seen in the Regional Classic period, and even earlier, going back to Formative 2 times. Before the Recent period, however, the emphasis was on luxury goods in limited quantities for restricted circulation. In the Recent period, the intensity of craft activity in certain households increased somewhat; the association of these lower ranking households with higher status households became much clearer; and the emphasis on luxury goods diminished in favor of more utilitarian items for wider circulation.

During the Classic and Recent periods (as in the Formative), the household or the nuclear family was the basic economic unit of production and consumption as well as the basic unit of social reproduction. Each household produced their own chipped and ground stone tools, and it was possible that their members got the raw material directly from local sources not far from home. Every household cultivated its own piece of land and consumed a wide

range of food (Sánchez 2007: 27) including maize, and meat from hunted wild animals. Every family may have gotten access to the same range of material for construction and used it to live in dwellings of quite similar size, with the exceptions of Household 68 of the Classic (Gonzalez 2007), Household R-1 from La Estación of the Recent period (Duque and Cubillos 1981), and Households 1 and 7 from this study. Each household probably formed an integrated unit of labor for house construction and as well as maintenance. The size and construction characteristics of R-1 structure from La Estación, besides the ceramic and lithic assemblages, make it possible to think of it as a public structure for ceremonial purposes (Duque and Cubillos 1981: 26). However, since the very beginnings of the Mesitas trajectory there is an increasing tendency of households at the core zone to form larger social groups joined by cooperative ties. From Classic to Recent times the ties between spatially associated households seem to have become stronger and their economic orientation switched from being largely oriented to the production of luxuries to the production of utilitarian items. The production of utilitarian goods by attached specialists has been seen in other trajectories of change, for example in Mesoamerica during the Late Formative (ca. 400 B.C.-A.D.100) and Terminal Formative (A.D. 100-300) at Tres Zapotes in the Tuxtla region of southern Veracruz, Mexico (Pool 2009: 124); during the Middle Formative (950-550 B.C.) and Late Formative (550-150 B.C.) in the Tepeaca region in the Valley of Puebla, Mexico (Castanzo 2009: 139-40); in the Uruk period (ca. 3900-3100 BC) of southern Mesopotamia (Stein 1996: 31-3); and in the Early Bronze Age from Eritou (ca. 1900-1500 B.C.) to Shang (ca. 1600-1046 B.C.) periods in the central Yellow River valley in northern China (Underhill 2004: 234-5). Such a pattern of specialized production may have small scale beginnings in the Alto Magdalena during the Regional Classic period. Elites seem to

have dominated the economy more during the Recent period. The intensified production of utilitarian items during this period would be consistent with an increasing importance of economic bases of elite power. Such a shift is also indicated by Recent period changes in pottery production and distribution at the regional scale in the Valle de la Plata (Taft 1993). These changes would also mean a greater degree of economic interdependence between households in the Recent period.

In that neighboring region of the Valle de la Plata, during the Regional Classic period pottery was produced in the central places, within denser centers of population with sites having monuments (Taft 1993: 145-157). From the main five clusters of ceramic production detected in the Classic period, the production in the clusters 3, 4 and 5 originated in the same area of the survey tract 84 to the northeastern side of the middle portion of the Valle de la Plata. However, these different groups of potters did not use the same source of raw material; for instance, clays from clusters 1 and 2 came from areas outside the study area but still within the Valle de la Plata. Ceramics from the cluster 3 were manufactured at a low level and had a narrow distribution. On the contrary, ceramics from clusters 4 and 5 were produced on a large scale and were widely distributed; cluster 4 reached the greater center of population in the northwestern area of the middle zone of the valley and rural areas 50 km away towards the lower portion of the valley; cluster 5 represented a more influential network of distribution of pottery to the lower portion of the valley. These two clusters although reached a large scale of production, were still developed at the household level. Despite these elevated degrees of specialization and the intensive dynamics of exchange, pottery production and distribution were not centrally controlled during the Regional Classic (Taft 1993: 157).

During the Recent period, the production and distribution of ceramics changed substantially (Taft 1993: 159-165). The loci of production remained in the places that previously aggregated entire populations around the funerary monuments, although those monumental burials went out of use and were no longer built. These areas remained as the central communities and grouped larger and denser populations. At that time, four clusters of ceramic production in the Valle de la Plata stand out, each one being apparently the result of a long tradition of pottery makers since the Formative 1, such as the clusters 1 and 2, located within the northeast part of the upper valley zone. Clusters 3 and 4 represent groups of small scale pottery manufacture and distribution developed by rather different groups of potters. During the Recent the distributional networks among different clusters of pottery were not overlapping, which was different from the previous Classic period. Cluster 2 became the dominant group, producing a more standardized local pottery, widely distributed along the upper portion of the Valle de la Plata and reaching zones as far as south of the Rio Páez. The competition between groups of potters, previously seen during the Classic period, decreased substantially leaving this cluster 2 without any competitor. It has been suggested that the consolidation of the cluster 2, like a monopoly, is in agreement with a more centralized administrative control over pottery production and distribution; in this sense, the Recent period marks a substantial increase in political consolidation and more central control over local and regional sectors of the economy like pottery production and distribution not seen during any previous period (Taft 1993: 165). Since we do not have information on raw material sources for ceramics from the Mesitas community, it cannot be compared directly to these patterns, but the changes Taft reconstructs from Regional Classic to Recent in the Valle de la Plata are

consistent with the evidence from Mesitas that suggests more intensive craft specialization in Recent times and closer connections between that more specialized production and elites. On the contrary, spinning activities were not especially connected to elites. The proportions of spindle whorls ($n = 13$) (Figure 4.25) were not higher in any high ranking household or in any of the putative attached specialist households, indicating that spinning was part of a widespread domestic economy in which households satisfied their own needs.

Finally, demographic changes at Mesitas from the Classic period to the Recent period also deserve some consideration. Population growth occurred throughout the Mesitas trajectory, while the Formative 2 and Regional Classic marked abrupt jumps of growth; these events, however, did not have a direct effect on the formation of complex societies of the Classic period (Drennan and Quattrin 1995, Drennan 2000). In Mesitas a gradual increase in population has been observed since the beginning of the sedentary occupation in the Formative 1 (1000-600 B.C.) to the Regional Classic period (A.D. 1-900) (González 2007: 33-7). The density and the number of residential units in the central community of Mesitas during the Recent period (A.D. 900-1530) also increased, this happened both in the core zone of the community as well as in peripheral areas. These increases have been preliminarily calculated as 75 household units from the Classic period to 98 household units in the Recent (Figure 2.1), marking a population increase of 24 families over the 600 years, which represents the inclusion of a new family of five members into this central community about every 25 years.

The Recent period involved more households in the landscape. No doubt, the demographic changes that occurred at that period impacted the development of everyday life, the social organization, and the economies of several communities in the Alto Magdalena

region. A larger population provided a greater productive force, and also created greater demand for goods and services. Population increases from the Regional Classic to the Recent period could have reinforced the need to intensify agriculture, as is seen in the neighboring region of Isnos (Sánchez 2005, 2007), or might have represented the opportunity to extract tribute from neighboring communities (González 2007: 13). The Recent period was also characterized by higher levels of intensification in the production of goods and services, although the difference with respect to the Classic period is not extremely large. Paralleling this, there was a greater level of ceramic standardization and a greater control and centralization in the production and distribution of that utilitarian item. Population growth may have represented an opportunity for the elites to encourage the specialized production of pottery in particular, to strengthen the redistributive system as a way to exert control over goods, services and the labor of a larger population. Population growth may have represented a political opportunity for Recent elites to increase their economic control, but this change from the previous Classic period was not a massive reorganization. Increases in specialized production may have occurred at a level that did not exhaust the population because families had an ever increasing need for agricultural production of foodstuffs (Drennan and Quattrin 1995, Drennan 2000). Leaders could consolidate more power through controlling production and distribution networks for pottery and perhaps some other goods, establishing a monopoly over such production. It is possible that this resulted in greater levels of wealth production, which were not completely accumulated by the chiefs. In contrast, lower levels of wealth accumulation observed from Classic to Recent periods might have involved a higher degree of redistribution of wealth throughout wider sectors of population in the polity.

The demographic, economic, and social factors that helped to model the new political sphere of the Recent period in the Mescalero central community, and probably in all Alto Magdalena chiefdoms, had begun in the previous Regional Classic period, and even earlier in the sequence since the Formative 2. Thus, the nature of the Classic period leaders as coordinators of the local economies (González 2007: 117-9) did not change abruptly in the Recent period. The economic system just endured a change in which more people might have represented a larger labor pool. But, the administration of a larger production must have required a new and a larger level of social integration in order to avoid internal conflict due to increasing demands of surpluses and increasing imbalances of how power was exercised. Elites and society might have appealed to new social cohesion methods, in order to avoid collapse and social disintegration from an increasingly complex organization. Archaeological studies of the Moundville chiefdom society from Moundville phase I (A.D. 1050-1250) to Moundville phase II (A.D. 1250-1400) (Welch 1996: 86-91), and of the Titicaca basin societies from the Early Formative period (2000-1300 B.C.) to the Middle Formative period (ca. 1300-500 B.C.) (Stanish 2004: 24), are especially illustrative in this sense.

In the Moundville chiefdom the redistribution of wealth through rituals and acts of ideological social stratification may have inhibited social conflict and group fissioning and helped to downplay social inequalities (Welch 1996, Wilson 2008: 129-130). They allowed a particularly well sustained social development of several socially ranked structures, and ritual and ideology helped to keep cohesive broader social sectors over the long term (Knight 1998: 52-54, Welch 1996: 89). In the Moundville chiefdom, there was a significant interrelationship between these political dynamics and the economic structure; the paramount chief controlled

two significant sectors of the economy; one was the production of utilitarian green stone celts, an essential element for clearing agricultural fields, made of hematitic schists available at cave deposits to the northeast of the Moundville center at distances between 85 to 150km (Wilson 2001: 121, 2004); the other was the importation and distribution of nonlocal luxury items for prestige display and deictic testimonials of social rank (Peebles and Kus 1977, Steponaitis 1992, Welch 1996; although this vision has been contested by other studies, see Wilson 2001, 2008). In addition, Moundville's elite may have received maize and deer meat from commoners in the form of tribute (Welch and Scarry 1995, Welch 1996: 77, Wilson 2008: 28).

In the Titicaca Basin chiefdoms of the Middle Formative period (Stanish 2004) something quite similar occurred; as in the Moundville case the administration and management of craft specialization of fine wares and other goods represented a new source of power for the Middle Formative elites. At that time the methods for *smoothing things over* regarding social inequalities also relied on the order of religious and ritual forms (Stanish 2004: 21-24). "One of the necessary conditions for a successful economic organization in ranked societies is an ideology of reciprocity that guarantees equitable redistribution of production. In other words, these ideologies keep productive groups together and sanctify the allocation systems mediated or controlled by the elite"(Stanish 2004: 17). Both in Moundville and the Titicaca basin, chiefdom development went hand in hand to inter-polity competition or political factionalism (Brumfiel and Fox 1994). Supra-regional dynamics of political factionalism offered a challenge to chiefs to keep commoner populations attached to their permanent control, because mismanaged social inequalities and power imbalances could represent the loss of followers. In these two cases, enhancing prestige through the exhibition of foreign elements as

well as the construction of massive public buildings imbued with religious symbolism represented a good way to unite entire regional populations. In other words, the ritual politics and the ritual economies acted as the perfect social glue as social segments became increasingly ranked.

According to the information we have so far, the principal utilitarian item that Recent period chiefs in the Alto Magdalena might have controlled was pottery. As Stanish pointed out (2004: 15), what might have changed in the process of pottery specialization from the Classic period to the Recent period could be "... the organization of the labor, not the nature or intensity of that labor." Pottery specialization had a deep background in the development of the Alto Magdalena societies. This is why the organization of the pottery production did not represent the introduction of new skills; pottery making did not represent anything technically new to learn for the people as an organized society. The new Recent chief's office knew that, and took advantage of it to get more control over new stages of the labor organization process. The administration, management and control of pottery production and distribution may have represented a unique opportunity for these emerging elites; such control could not have been established over the land or over substantial portions of the agricultural production due to the position of nuclear families as basic units of production. Different from Moundville and the Titicaca Basin, the control of the specialized production of pottery did not represent an opportunity for the new elite to acquire prestige goods from outside regions (whose archaeological records are very scanty). Ritual activities might have been important in the Recent period, but their record is difficult to trace because permanent monumental ceremonial and funerary construction (which provides so much information for the Regional Classic) had

ceased. Ritual activities could have continued to play an important role in ways that are less conspicuous archaeologically.

In the Mesitas central community the subsistence economy during both the Classic and Recent periods was decentralized; households were largely self-sufficient in preparation, consumption and storage behavior as was observed through similar vessels' shapes and sizes. They might have had access to local sources of raw material to make their own ground and chipped stone tools. In Classic times the production of utilitarian items like pottery was not under the control of the elites, but the production of a few luxury items like hexagonal beads and pendants, some pottery like tripod vessels, and some crafts imbued with religious meaning like statues, gold and pedestal cups were restricted to them. In Recent times, the economy of luxuries and exotics was also controlled by the elite, but it developed on a much smaller scale than in the previous period, and the production of pottery was subjected to a more centralized control, where its manufacture within the core zone at Mesitas might be under the direct supervision of the elites.

The excavation of high and low status households of the Recent period in the Mesitas community, thus provides partial support for Drennan's suggestion that ideology's role as a basis of power decreased and materialistic or economic factors played a larger role in Recent period politics. This transition, as Drennan also suggested, represented considerable continuity in the hierarchical patterns of social organization that had developed many centuries earlier across the Alto Magdalena. The magnitude of the change in bases of power seems, however, to have been less than Drennan initially imagined, as the accumulation of wealth in the hands of elites, while greater than that seen in the Regional Classic, was still minimal when compared to

that seen in early complex societies in a number of other regions. This overall picture is also consistent with Fried's and Service's classic view of chiefdom societies as depending fairly heavily on religious and ideological means of integration. This is also consistent with Trigger's view of ideology as a basis of power that can hold together different social classes and might facilitate larger economic structures. The implications of these findings for perspectives, such as those of Earle or Gilman, that emphasize the importance of economic control early on in the emergence of hierarchical sociopolitical organization are less clear. On the one hand, the societies of the Alto Magdalena were characterized by consolidated regional polities of considerable demographic scale by Regional Classic times with minimal evidence of either wealth accumulation by elites or elite involvement in economic affairs. The archaeologically conspicuous evidence of an important political role for religion and ritual activities wanes in the Recent period, but wealth disparities and elite involvement in the production and distribution of some goods increase only modestly. This could, nonetheless, be said to correspond well to the only modest increases in the scale of regional political integration and hierarchical social differentiation of the period.

APPENDIX A

ACCESS TO DATASET

Complete data about all Recent period artifacts along with their excavations unit proveniences per household are available electronically in the University of Pittsburgh Comparative Archaeology Database (<www.cadb.pitt.edu>). This dataset is accessible to internet users browsing with Firefox, Chrome, Opera, Explorer or Safari.

General inquiries regarding the formatting of this database and others may be directed to the following address:

cadb@pitt.edu

Specific questions concerning the database may be directed to the author at:

frr1033@gmail.com

BIBLIOGRAPHY

Alchian, Armen A. and William R. Allen

1969 *Exchange and Production: Theory in Use*. Wadsworth Publishing Co., Belmont.

Arnold, Dean E.

1985 *Ceramic Theory and Cultural Process*. Cambridge University Press, Cambridge.

1988 *Ceramic Theory and Cultural Process*. Cambridge University Press, Cambridge.

1993 *Ecology and Ceramic Production in an Andean Community*. Cambridge University Press, Cambridge.

2008 *Social Change and the Evolution of Ceramic Production and Distribution in a Maya Community*. University Press of Colorado, Boulder.

Arnold, Jeanne E.

1984 Economic Specialization in Prehistory: Methods of Documenting the Rise of Lithic Craft Specialization. In *Lithic Resource Procurement: Proceedings from the Second Conference on Prehistoric Chert Exploitation*, edited by S. C. Vehic. Southern Illinois University, Carbondale.

1990 Lithic Resource Control and Economic Change in the Santa Barbara Channel Region. *Journal of California and Great Basin Anthropology* 12(2):158-172.

1992 Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime Adaptations of the Channel Islands. *American Antiquity* 57(1):60-84.

Arnold, Jeanne E. and Ann Munns

1994 Independent or Attached Specialization: The Organization of Shell Bead Production in California. *Journal of Field Archaeology* 21(4):473-489.

Arnold, Philip J. III

1991 *Domestic Ceramic Production and Spatial Organization : A Mexican Case Study in Ethnoarchaeology*. Cambridge University Press, Cambridge.

Aronson, Meredith, James M. Skibo and Miriam T. Stark

1994 Production and Use Technologies in Kalinga Pottery. In *Kalinga Ethnoarchaeology: Expanding Archaeological Method and Theory*, edited by W. A. Longacre and J. M. Skibo, pp. 83-112. Smithsonian Institution Press, Washington, D.C.

Ashmore, Wendy and Richard R. Wilk

1988 Household and Community in the Mesoamerican Past: Introduction. In *Household and Community in the Mesoamerican Past*, edited by R. R. Wilk and W. Ashmore, pp. 1-15. University of New Mexico Press, Albuquerque.

Bates, Daniel G. and Susan H. Lees

1977 The Role of Exchange in Productive Specialization. *American Anthropologist* 79(4): 824-841.

Bermann, Marc

1994 *Lukurmata. Household Archaeology in Prehispanic Bolivia*. Princeton University Press, Princeton.

Blick, Jeffrey

1993 *Social Differentiation in the Regional Classic Period (1-900 AD) in the Valle de la Plata, Colombia*. Ph.D. Dissertation, University of Pittsburgh, Pittsburgh

Boada, Ana M.

2007 *The Evolution of Social Hierarchy in a Muisca Chiefdom of the Northern Andes of Colombia. La Evolución de la Jerarquía Social en un Cacicazgo Muisca de los Andes Septentrionales de Colombia*. University of Pittsburgh Memoirs in Latin American Archaeology No.17. University of Pittsburgh, Instituto Colombiano de Antropología e Historia, Pittsburgh, Bogotá.

Bray, Tamara L.

2003 Inka Pottery as Culinary Equipment: Food, Feasting, and Gender in Imperial State Design. *Latin American Antiquity* 14(1):3-28.

Brumfiel, Elizabeth M.

1987 Elite and Utilitarian Crafts in the Aztec State. In *Specialization, Exchange, and Complex Societies*, pp. 102-118. Cambridge University Press, Cambridge.

1994 Factional Competition and Political Development in the New World: An Introduction. In *Factional Competition and Political Development in the New World*, edited by E. M. Brumfiel and J. W. Fox, pp. 3-13. Cambridge University Press, Cambridge.

1995 Heterarchy and the Analysis of Complex Societies: Comments. In *Heterarchy and the Analysis of Complex Societies*, edited by R. M. Ehrenreich, C. L. Crumley and J. E. Levy, pp. 125-131. Archeological Papers of the American Anthropological Association, No. 6.

Brumfiel, Elizabeth M. and Timothy K. Earle

1987 Specialization, Exchange, and Complex Societies: An Introduction. In *Specialization, Exchange, and Complex Societies*, edited by E. M. Brumfiel and T. K. Earle, pp. 1-9. Cambridge University Press, Cambridge.

Castanzo, Ronald A.

2009 Ceramics on the Side: Pottery Making as an Augmentation of Household Economy in the Valley of Puebla during the Formative Period. In *Housework: Craft Production and Domestic Economy in Ancient Mesoamerica*, edited by K. Hirth, pp. 133–147. vol. 19 (1). Archeological Papers of the American Anthropological Association.

Clark, John E.

1995 Craft Specialization as an Archaeological Category. *Research in Economic Anthropology* 16:267-294.

2007 In Craft Specialization's Penumbra: Things, Persons, Action, Value, and Surplus. In *Rethinking Craft Specialization in Complex Societies: Archaeological Analyses of the Social Meaning of Production*, edited by R. K. Flad and Z. X. Hruby, pp. 20-35. vol. 17 (1). Archeological Papers of the American Anthropological Association.

Clark, John E. and Michael Blake

1994 The Power of Prestige: Competitive Generosity and the Emergence of Rank Societies in Lowland Mesoamerica. In *Factional Competition and Political Development in the New World*, edited by E. M. Brumfiel and J. W. Fox, pp. 17-30. Cambridge University Press, Cambridge.

Clark, John E. and William J. Parry

1990 Craft Specialization and Cultural Complexity. *Research in Economic Anthropology* 12:289-346.

Cliff, Maynard B.

1988 Domestic Architecture and Origins of Complex Society at Cerros. In *Household and Community in the Mesoamerican Past*, edited by R. R. Wilk and W. Ashmore, pp. 199-225. University of New Mexico Press, Albuquerque.

Correal U., Gonzalo

1990 *Aguazuque. Evidencias de Cazadores, Recolectores y Plantadores en la*

Altiplanicie de la Cordillera Oriental. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

Correal U., Gonzalo and María Pinto N.

1983 *Investigación Arqueológica en el Municipio de Zipacón, Cundinamarca*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

Correal U., Gonzalo and Thomas van der Hammen

1977 *Investigaciones Arqueológicas en los Abrigos Rocosos del Tequendama. 12.000 Años de Historia del Hombre y su Medio Ambiente en la Altiplanicie de Bogotá*. Fondo de Promoción de la Cultura del Banco Popular, Bogotá.

Costin, Cathy L.

1991 Craft Specialization: Issues in Defining, Documenting, and Explaining the Organization of Production. *Archaeological Method and Theory* 3:1-56.

2000 The Use of Ethnoarchaeology for the Archaeological Study of Ceramic Production. *Journal of Archaeological Method and Theory* 7(4):377-403.

2007 Thinking about Production: Phenomenological Classification and Lexical Semantics. In *Rethinking Craft Specialization in Complex Societies: Archaeological Analyses of the Social Meaning of Production*, edited by R. K. Flad and Z. X. Hruby, pp. 143–162. vol. 17 (1). Archeological Papers of the American Anthropological Association.

Costin, Cathy L. and Melissa B. Hagstrum

1995 Standardization, Labor Investment, Skill, and the Organization of Ceramic Production in Late Prehispanic Highland Peru. *American Antiquity* 60(4):619-639.

Crumley, Carole L.

1979 Three Locational Models: An Epistemological Assessment of Anthropology and Archaeology. In *Advances in Archaeological Method and Theory*, vol. 2, edited by M. B. Schiffer, pp. 141-173. Academic Press, New York.

1995 Heterarchy and the Analysis of Complex Societies. In *Heterarchy and the Analysis of Complex Societies*, edited by R. M. Ehrenreich, C. L. Crumley and J. E. Levy, pp. 1-5. Archeological Papers of the American Anthropological Association, No. 6.

Cubillos, Julio C.

1980 *Arqueología de San Agustín. El Estrecho, El Parador, y Mesita C.* Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1986 *Arqueología de San Agustín. Alto de El Purutal.* Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

Deal, Michael

1998 *Pottery Ethnoarchaeology in the Central Maya Highlands.* University of Utah Press, Salt Lake City.

Dillon, Richard G.

1985 Chiefly Households in Precolonial Met'a Society. *Paideuma* 31:3-13.

Drennan, Robert D.

1976 *Fábrica San José and Middle Formative Society in the Valley of Oaxaca.* Prehistory and Human Ecology of the Valley of Oaxaca. University of Michigan Museum of Anthropology, Memoir No. 8, Ann Arbor.

1985 Archaeological Survey and Excavation. In *Regional Archaeology in the Valle de la Plata, Colombia. A Preliminary Report on the 1984 Season of the Proyecto Arqueológico Valle de la Plata*, edited by R. D. Drennan, pp. 117-180. vol. 16. University of Michigan, Museum of Anthropology, Technical Reports Ann Arbor.

1993 Part One: Ceramic Classification, Stratigraphy, and Chronology. Primera Parte: Clasificación Cerámica, Estratigrafía, y Cronología. In *Prehispanic Chiefdoms in the Valle de la Plata , Volume 2. Ceramics-Chronology and Craft Production. Cacicazgos*

Prehispánicos del Valle de la Plata, Tomo 2: Cerámica-Cronología y Producción Artesanal, edited by R. D. Drennan, M. M. Taft and C. A. Uribe, pp. 8-104. University of Pittsburgh Memoirs in Latin American Archaeology, No. 5. University of Pittsburgh, Universidad de los Andes, Pittsburgh, Bogotá.

1995 Mortuary Practices in the Alto Magdalena: The Social Context of the "San Agustín Culture". In *Tombs for the Living. Andean Mortuary Practices*, edited by T. D. Dillehay, pp. 79-110. Dumbarton Oaks Research Library and Collection, Washington, D.C.

2000 *Las Sociedades Prehispánicas del Alto Magdalena*. Instituto Colombiano de Antropología e Historia, Bogotá.

2006 Conclusion. Conclusión. In *Prehispanic Chiefdoms in the Valle de la Plata, Volume 5. Regional Settlement Patterns. Cacicazgos Prehispánicos del Valle de la Plata, Tomo 5. Patrones de Asentamiento Regionales*, edited by R. D. Drennan, pp. 219-229. University of Pittsburgh Memoirs in Latin American Archaeology No.16. University of Pittsburgh, Universidad de los Andes, Pittsburgh, Bogotá.

2010 *Statistics for Archaeologists. A Commonsense Approach. Second Edition*. Springer, New York.

Drennan, Robert D. and Dale W. Quattrin

1995 Social Inequality and Agricultural Resources in the Valle de la Plata, Colombia. In *Foundations of Social Inequality*, edited by T. D. Price and G. M. Feinman, pp. 207-233. Plenum Press, New York.

Dumont, John V.

1983 An Interim Report of the Star Carr Microwear Study. *Oxford Journal of Archaeology* 2(1):127-145.

Duque G., Luis and Julio C. Cubillos

1979 *Arqueología de San Agustín: Alto de los Idolos, Montículos y Tumbas*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1981 *Arqueología de San Agustín. La Estación*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1983 *Arqueología de San Agustín. Exploraciones y Trabajos de Reconstrucción en las Mesitas A y B*. Fundación de Investigaciones Arqueológicas Nacionales. Banco de la República, Bogotá.

1988 *Arqueología de San Agustín : Alto de Lavapatas*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1993 *Arqueología de San Agustín: Exploraciones Realizadas en el Alto de las Piedras (1975-1976)*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

Earle, Timothy K.

1982 Prehistoric Economics and the Archaeology of Exchange. In *Contexts for Prehistoric Exchange*, edited by J. E. Ericson and T. K. Earle, pp. 1-12. Academic Press, New York.

1987 Specialization and the Production of Wealth: Hawaiian Chiefdoms and the Inka Empire. In *Specialization, Exchange, and Complex Societies*, edited by E. M. Brumfiel and T. K. Earle, pp. 64-75. Cambridge University Press, Cambridge.

1991 The Evolution of Chiefdoms. In *Chiefdoms: Power, Economy, and Ideology* edited by T. K. Earle, pp. 1-15. Cambridge University Press, Cambridge.

1997 *How Chiefs come to Power: The Political Economy in Prehistory*. Stanford University Press, Stanford.

1998 Property Rights and the Evolution of Hawaiian Chiefdoms. In *Property in Economic Context. Monographs in Economic Anthropology, No. 14*, edited by R. C. Hunt and A. Gilman, pp. 89-118. University Press of America, Inc., Lanham, New York, Oxford.

2001 Institutionalization of Chiefdoms. Why Landscapes are Built? In *From Leaders to Rulers*, edited by J. Haas, pp. 105-124. Kluwer Academic/Plenum Publishers, New York.

2002 The Ecology and Politics of Primitive Valuables. In *Bronze Age Economics. The Beginnings of Political Economies*, pp. 19-42. Westview Press, Boulder.

Ehrenreich, Robert M., Carol L. Crumley and Janet E. Levy (editors)

1995 *Heterarchy and the Analysis of Complex Societies*. Archeological Papers of the American Anthropological Association, No. 6.

Evans, R. K.

1978 Early Craft Specialization: An Example from the Balkan Chalcolithic In *Social Archaeology: Beyond Subsistence and Dating*, edited by C. L. Redman, M. J. Berman, E. V. Curtin, W. T. Langhorne, N. M. Versaggi and J. C. Wasner, pp. 113-129. Academic Press, New York.

Falchetti, Ana M.

1975 *Arqueología de Sutamarchán, Boyacá*. Biblioteca Banco Popular, Bogotá.

Feinman, Gary M.

1999 Rethinking our Assumptions: Economic Specialization at the Household Scale in Ancient Ejutla, Oaxaca, Mexico. In *Pottery and People: A Dynamic Interaction*, edited by J. M. Skibo and G. M. Feinman, pp. 81-98. University of Utah Press, Salt Lake City

Feinman, Gary M., Stephen A. Kowalewski and Richard E. Blanton

1984 Modelling Ceramic Production and Organizational Change in the Pre-Hispanic Valley of Oaxaca, Mexico. In *The Many Dimensions of Pottery: Ceramics in Archaeology and Anthropology*, edited by S. E. van der Leeuw and A. C. Pritchard, pp. 297-333. Universiteit van Amsterdam, Amsterdam.

Feinman, Gary M., Steadman Upham and Kenneth Lightfoot

1981 The Production Step Measure: An Ordinal Index of Labor Input in Ceramic Manufacture. *American Antiquity* 48:871-884.

Flannery, Kent V. and Joyce Marcus

1994 *Early Formative Pottery of the Valley of Oaxaca*. Memoirs of the Museum of Anthropology, University of Michigan, No. 27, Ann Arbor.

2005 *Excavations at San José Mogote 1. The Household Archaeology*. Memoirs of the Museum of Anthropology, University of Michigan, No. 40. Ann Arbor.

Flannery, Kent V. and Marcus C. Winter

1976 Analyzing Household Activities. In *The Early Mesoamerican Village*, edited by K. V. Flannery, pp. 34-47. Academic Press, New York.

Fried, Morton H.

1960 On the Evolution of Social Stratification and the State. In *Culture in History*, edited by S. Diamond, pp. 713-731. Columbia University Press, New York.

1967 *The Evolution of Political Society*. Random House, New York.

1968 On the Evolution of Social Stratification and the State. In *Theory in Anthropology*, edited by R. A. Manners and D. Kaplan, pp. 251-260. Aldine Publishing Company, Chicago.

Frink, Lisa

2007 Storage and Status in Precolonial and Colonial Coastal Western Alaska. *Current Anthropology* 48(3):349-374.

Gilman, Antonio

1981 The Development of Social Stratification in Bronze Age Europe. *Current Anthropology* 22(1):1-23.

1991 Trajectories toward Social Complexity in the Later Prehistory of the Mediterranean. In *Chieftdoms: Power, Economy, and Ideology*, edited by T. K. Earle, pp. 146-168. Cambridge University Press, Cambridge.

1998 Reconstructing Property Systems from Archaeological Evidence. In *Property in Economic Context. Monographs in Economic Anthropology, No. 14*, edited by R. C. Hunt and A. Gilman, pp. 215-233. University Press of America, Inc., Lanham, New York, Oxford.

2001 Assessing Political Development in Copper and Bronze Age Southeast Spain. In *From Leaders to Rulers*, edited by J. Haas, pp. 59-81. Kluwer Academic/Plenum Publishers, New York.

Gilman, Antonio and John B. Thornes

1985 *Land-Use and Prehistory in South-East Spain*. Allen & Unwin, London, Boston.

Gnecco, Cristobal

1996 Reconsideración de la Complejidad Social en el Suroccidente Colombiano. In *Dos Lecturas Críticas: Arqueología en Colombia*, pp. 43-74. Fondo de Promoción de la Cultura, Santafé de Bogotá.

González F., Víctor

2007 *Prehispanic Change in the Mesitas Community: Documenting the Development of a Chieftdom's Central Place in San Agustín, Huila, Colombia. Cambio Prehispánico en la Comunidad de Mesitas: Documentando el Desarrollo de la Comunidad Central en un Cacicazgo de San Agustín, Huila, Colombia*. University of Pittsburgh Memoirs in Latin American Archaeology No.18. University of Pittsburgh, Instituto Colombiano de Antropología e Historia, Pittsburgh, Bogotá.

González F., Víctor, Francisco Romano G. and Hernan Ordóñez H.

2010 Informe Labores de Reconocimiento de Magnetometría en Mesitas, 2010. Reporte Interno. Instituto Colombiano de Antropología, ICANH.

s.f. Informe Final. Reconocimiento de Magnetometría en Mesitas. Reporte Interno. Instituto Colombiano de Antropología, ICANH.

Hagstrum, Melissa B.

1985 Measuring Prehistoric Ceramic Craft Specialization: A Test Case in the American Southwest. *Journal of Field Archaeology* 12(1):65-75.

1988 Ceramic Production in the Central Andes, Peru. An Archaeological and Ethnographic Comparison. In *A Pot for all Reasons: Ceramic Ecology Revisited*, edited by C. C. Kolb, F. R. Matson, L. M. Lackey and M. Kirkpatrick, pp. 127-145. Laboratory of Anthropology, Temple University, Philadelphia.

Haines, Helen R., Gary M. Feinman and Linda M Nicholas

2004 Household Economic Specialization and Social Differentiation: The Stone-tool Assemblage at El Palmillo, Oaxaca. *Ancient Mesoamerica* 15(2):251-266.

Hastorf, Christine A.

1990 One Path to the Heights: Negotiating Political Inequality in the Sausa of Peru. In *The Evolution of Political Systems: Sociopolitics in Small-scale Sedentary Societies*, edited by S. Upham, pp. 146-176. Cambridge University Press, Cambridge.

Hayden, Brian

1986 Use and Misuse: The Analysis of Endscrapers. *Lithic Technology* 15:65-70.

Hayden, Brian and Aubrey Cannon

1984 *The Structure of Material Systems: Ethnoarchaeology in the Maya Highlands*. Society for American Archaeology, Papers No. 3.

Hendon, Julia A.

1996 Archaeological Approaches to the Organization of Domestic Labor: Household Practice and Domestic Relations. *Annual Review of Anthropology* 25(1):45-61.

2000 Having and Holding: Storage, Memory, Knowledge, and Social Relations. *American Anthropologist* 102(1):42-53.

Herrera, Luisa F., Robert D. Drennan and Carlos A. Uribe (editors)

1989 *Prehispanic Chiefdoms in the Valle de la Plata, Volume 1. The Environmental Context of Human Habitation. Cacicazgos Prehispánicos del Valle de la Plata, Tomo 1. El Contexto Medioambiental de la Ocupación Humana*. University of Pittsburgh Memoirs in Latin American Archaeology No. 2. University of Pittsburgh, Universidad de los Andes, Pittsburgh, Bogotá.

Hester, Thomas R. and Harry J. Shafer

1992 Lithic Workshops Revisited: Comments on Moholy-Nagy. *Latin American Antiquity* 3(3):243-248.

Hirth, Kenneth G.

1993b Identifying Rank and Socioeconomic Status in Domestic Contexts: An Example from Central Mexico. In *Prehispanic Domestic Units in Western Mesoamerica: Studies of the Household, Compound, and Residence*, edited by R. S. Santley and K. G. Hirth, pp. 121-146. CRC Press, Boca Raton.

1996 Political Economy and Archaeology: Perspectives on Exchange and Production. *Journal of Archaeological Research* 4(3):203-239.

2009a Housework and Domestic Craft Production: An Introduction. In *Housework: Craft Production and Domestic Economy in Ancient Mesoamerica*, edited by K. Hirth, pp. 1-12. vol. 19 (1). Archeological Papers of the American Anthropological Association.

2009b Craft Production, Household Diversification, and Domestic Economy in Prehispanic Mesoamerica. In *Housework: Craft Production and Domestic Economy in*

Ancient Mesoamerica, edited by K. Hirth, pp. 13-32. vol. 19 (1). Archeological Papers of the American Anthropological Association.

Hoag, Elizabeth A.

2003 A Spatial and Quantitative Analysis of Daub and Kiln Debris from Tres Zapotes. In *Settlement Archaeology and Political Economy at Tres Zapotes, Veracruz, Mexico*, edited by C. A. Pool. Monograph 50, Cotsen Institute of Archaeology. University of California Los Angeles.

Jaramillo, Luis G.

1996 *Prehispanic Chiefdoms in the Valle de la Plata, Volume 3. The Socioeconomic Structure of Formative 3 Communities. Cacicazgos Prehispánicos del Valle de la Plata, Tomo 3. La Estructura Socioeconómica de las Comunidades del Formativo 3*. University of Pittsburgh Memoirs in Latin American Archaeology No.10. University of Pittsburgh, Universidad de los Andes, Pittsburgh, Bogotá.

Johnson, Allen W. and Timothy K. Earle

2000 *The Evolution of Human Societies: From Foraging Group to Agrarian State*. Stanford University Press, Stanford.

Kirch, Patrick V.

1984 *The Evolution of the Polynesian Chiefdoms*. Cambridge University Press, Cambridge.

2000 *On the Road of the Winds: An Archaeological History of the Pacific Islands before European Contact*. University of California Press, Berkeley.

Knight, Charles

2003 Obsidian Production, Consumption, and Distribution at Tres Zapotes: Piecing Together Political Economy. In *Settlement Archaeology and Political Economy at Tres Zapotes, Veracruz, Mexico*, edited by C. A. Pool, pp. 69-89. Monograph 50, Cotsen Institute of Archaeology. University of California Los Angeles.

Knight Jr., Vernon J.

1998 Moundville as a Diagrammatic Ceremonial Center. In *Archaeology of the Moundville Chiefdom*, edited by V. J. Knight Jr. and V. P. Steponaitis, pp. 44-62. Smithsonian Institution Press, Washington, D.C.

Kolb, Michael J.

1994 Monumentality and the Rise of Religious Authority in Precontact Hawai'i. In *Current Anthropology*, pp. 521-547. vol. 35.

1999 Staple Finance, Ritual Pig Sacrifice, and Ideological Power in Ancient Hawai'i. In *Complex Polities in the Ancient Tropical World*, edited by E. A. Bacus and L. J. Lucero, pp. 89-107. Archeological Papers of the American Anthropological Association, No. 9.

Kristiansen, Kristian

1987 From Stone to Bronze: The Evolution of Social Complexity in Northern Europe, 2300-1200 BC. In *Specialization, Exchange, and Complex Societies*, edited by E. M. Brumfiel and T. K. Earle, pp. 30-51. Cambridge University Press, Cambridge.

Langebaek, Carl H.

1991 Highland Center and Foothill Periphery in 16th Century Eastern Colombia. *Research in Economic Anthropology* 13:325-339.

Lau, George F.

2002 Feasting and Ancestor Veneration at Chinchawas, North Highlands of Ancash, Peru. *Latin American Antiquity* 13(3):279-304.

Leventhal, Richard M. and Kevin H. Baxter

1988 The Use of Ceramics to Identify the Function of Copan Structures. In *Household and Community in the Mesoamerican Past*, edited by R. R. Wilk and W. Ashmore, pp. 51-71. University of New Mexico Press, Albuquerque.

Llanos V., Hector

1988 *Arqueología de San Agustín. Pautas de Asentamiento en el Cañon del rio Granates-Saladoblanco*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1990 *Proceso Histórico Prehispánico de San Agustín en el Valle de Laboyos (Pitalito-Huila)*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1993 *Presencia de la Cultura de San Agustín en la Depresión Cálida del Valle del Río Magdalena, Garzon-Huila*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Santafé de Bogotá, D.C.

1995 *Los Chamanes Jaguares de San Agustín: Génesis de un Pensamiento Mitopoético*. Hector Llanos V., Santafé de Bogotá.

1999 *Asentamientos Aborígenes en la Llanura de Matanzas, Tierra Fértil de San Agustín*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Santafé de Bogotá, D.C.

Llanos V., Hector and Anabella Duran de G

1983 *Asentamientos Prehispánicos de Quinchana, San Agustín*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

Llanos V., Hector and Hernan Ordóñez H.

1998 *Viviendas y Tumbas en los Altos de Lavaderos del Valle del Río Granadillos, San Agustín (El Rosario)*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

Longacre, William A.

1981 *Kalinga Pottery: An Ethnoarchaeological Study*. In *Pattern of the Past. Studies in Honour of David Clarke* edited by I. Hodder, G. Isaac and N. Hammond, pp. 49-66. Cambridge University Press, Cambridge.

1991 Sources of Ceramic Variability among the Kalinga of Northern Luzon. In *Ceramic Ethnoarchaeology*, edited by W. A. Longacre, pp. 95-111. The University of Arizona Press, Tucson.

MacEachern, Scott, David J.W. Archer and Richard D. Garvin (editors)

1989 *Households and Communities: Proceedings of the Twenty-first Annual Conference of the Archaeological Association of the University of Calgary*. University of Calgary, Archaeological Association, Calgary.

Mann, Michael

1986 *The Sources of Social Power: A History of Power from the Beginning to AD 1760*. Cambridge University Press, Cambridge.

Martin, Alexander J.

2010 Comparing the Role of the Export Sector in Prehistoric Economies: The Importance of Shell Manufacture to the Livelihood of Coastal Ecuadorian Populations. . In *Comparative Perspectives on the Archaeology of Coastal South America*, edited by R. E. Cutright, E. López-Hurtado and A. J. Martín, pp. 77-100. University of Pittsburgh Center for Comparative Archaeology, Pittsburgh.

Mckee, Brian

1999 Household Archaeology and Cultural Formation Processes: Examples from the Cerén Site, El Salvador. In *The Archaeology of Household Activities: Dwelling in the Past*, edited by P. M. Allison, pp. 30-42. Routledge, London; New York.

Mehrer, Mark W.

2000 Heterarchy and Hierarchy. The Community Plan as Institution in Cahokia's Polity. In *The Archaeology of Communities. A New World Perspective*, edited by M. A. Canuto and J. Yaeger, pp. 44-57. Routledge, London, New York.

Mills, Barbara J.

1989 Integrating Functional Analyses of Vessels and Sherds through Models of Ceramic Assemblage Formation. *World Archaeology* 21(1):133-147.

Moholy-Nagy, Hattula

1976 Spatial Distribution of Flint and Obsidian Artifacts at Tikal, Guatemala. In *Maya Lithic Studies: Papers from the 1976 Belize Field Symposium*, edited by T. R. Hester and N. Hammond, pp. 91-108. Center for Archaeological Research, The University of Texas at San Antonio.

Moreno G., Leonardo

1991 *Arqueología de San Agustín. Pautas de Asentamiento Agustonianas en el Noroccidente de Saladoblanco (Huila)*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.

1995 *Arqueología de San Agustín. Patrones de Poblamiento Prehispánico en Tarqui-Huila*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Santafé de Bogotá, D.C.

Odell, George H.

1980 Butchering with Stone Tools: Some Experimental Results. *Lithic Technology* 9:39-48.

1988 Addressing Prehistoric Hunting Practices through Stone Tool Analysis. *American Anthropologist* 90(2):335-356.

Peebles, Christopher S. and Susan M. Kus

1977 Some Archaeological Correlates of Ranked Societies. *American Antiquity* 42(3):421-448.

Piperno, Dolores R. and Irene Holst

1998 The Presence of Starch Grains on Prehistoric Stone Tools from the Humid Neotropics: Indications of Early Tuber Use and Agriculture in Panama. *Journal of Archaeological Science* 25(8):765-776.

Pool, Christopher A.

2003a Ceramic Production at Terminal Formative and Classic Period Tres Zapotes. In *Settlement Archaeology and Political Economy at Tres Zapotes, Veracruz, Mexico*, edited by C. A. Pool, pp. 56-68. Monograph 50, Cotsen Institute of Archaeology. University of California Los Angeles.

2003b Centers and Peripheries: Urbanization and Political Economy at Tres Zapotes. In *Settlement Archaeology and Political Economy at Tres Zapotes, Veracruz, Mexico*, edited by C. A. Pool, pp. 90-98. Monograph 50, Cotsen Institute of Archaeology. University of California Los Angeles.

2009 Residential Pottery Production in Mesoamerica. In *Housework: Craft Production and Domestic Economy in Ancient Mesoamerica*, edited by K. Hirth, pp. 115-132. vol. 19 (1). Archaeological Papers of the American Anthropological Association.

Quattrin, Dale W.

2001 *Prehispanic Chiefdoms in the Valle de la Plata, Volume 4. Vertical Economy, Interchange, and Social Change during the Formative Period. Cacicazgos Prehispánicos del Valle de la Plata, Tomo 4. Economía Vertical, Intercambio, y Cambio Social durante el Periodo Formativo*. University of Pittsburgh Memoirs in Latin American Archaeology No.11. University of Pittsburgh, Universidad de los Andes, Pittsburgh, Bogotá.

Rautman, Alison E.

1998 Hierarchy and Heterarchy in the American Southwest: A Comment on McGuire and Saitta. *American Antiquity* 63(2):325-333.

Reichel-Dolmatoff, Gerardo

1972 *San Agustín: A Culture of Colombia*. Praeger, New York.

1986 *Arqueología de Colombia: Un Texto Introductorio*. Fundación Segunda Expedición Botánica, Bogotá.

Rice, Prudence M.

1984 The Archaeological Study of Specialized Pottery Production: Some Aspects of Method and Theory. In *Pots and Potters: Current Approaches in Ceramic Archaeology*, edited by P. M. Rice, pp. 45-54. Institute of Archaeology, University of California, Los Angeles.

1991 Specialization, Standardization, and Diversity: A Retrospective. In *The Ceramic Legacy of Anna O. Shepard*, edited by R. L. Bishop and F. W. Lange, pp. 257-279. University Press of Colorado, Niwot.

Romano G., Francisco

1998 Excavaciones Arqueológicas en Dos Unidades Residenciales del Clásico Regional Temprano: Familia y Economía Doméstica. *Boletín de Arqueología, Fundación de Investigaciones Arqueológicas Nacionales* 13(2):7-79.

Romano G., Francisco and Gaspar Morcote

2001 Evidencia Arqueológica de *Prestoea acuminata* (Palmae) en Yacimientos del Período Reciente Agustiniano, San Agustín, Colombia. In *Memorias del Simposio Pueblos y Ambientes: Una Mirada al Pasado Precolombino*, edited by G. Morcote, pp. 26-36. Colección Memorias No. 10. Academia Colombiana de Ciencias Exactas, Físicas y Naturales, Bogotá.

Roosevelt, Anna C.

1999 The Development of Prehistoric Complex Societies: Amazonia, a Tropical Forest. In *Complex Polities in the Ancient Tropical World*, edited by E. A. Bacus and L. J. Lucero, pp. 13-33. Archeological Papers of the American Anthropological Association, No. 9.

Sánchez, Carlos A.

1991 *Arqueología del Valle de Timaná (Huila)*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.

2000 *Agricultura Intensiva, Dinámica de Población y Acceso Diferencial a la Tierra en el Alto Magdalena Arqueología del Área Intermedia* 2:69-98.

2005 *Sociedad y Agricultura Prehispánica en el Alto Magdalena*. Informes Arqueológicos, No. 4. Instituto Colombiano de Antropología e Historia, Bogotá.

2007 *Economía y Sociedad Prehispánica. El Uso de la Tierra en el Alto Magdalena*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.

Sanders, William T., Jeffrey R. Parsons and Robert S. Santley

1979 *The Basin of Mexico: Ecological Processes in the Evolution of a Civilization*. Academic Press, New York.

Santley, Robert S.

1989 Residential Site Structure in the Basin of Mexico During the Formative and Classic Periods. In *Households and Communities*, edited by S. MacEachern, D. J. W. Archer and R. D. Garvin, pp. 398-406. The Archaeological Association of the University of Calgary, Calgary, Calgary.

1993 Late Formative Period Society at Loma Torremote: A Consideration of the Redistribution vs the Great Provider Models as a Basis for the Emergence of Complexity in the Basin of Mexico. In *Prehispanic Domestic Units in Western Mesoamerica: Studies of the Household, Compound, and Residence*, edited by R. S. Santley and K. G. Hirth, pp. 67-86. CRC Press, Boca Raton.

Santley, Robert S., Philip J. Arnold III and Christopher A. Pool

1989 The Ceramics Production System at Matacapán, Veracruz, Mexico. *Journal of Field Archaeology* 16(1):107-132.

Santley, Robert S. and Kenneth G. Hirth

1993 Household Studies in Western Mesoamerica. In *Prehispanic Domestic Units in Western Mesoamerica: Studies of the Household, Compound, and Residence*, edited by R. S. Santley and K. G. Hirth, pp. 3-17. CRC Press, Boca Raton.

Santley, Robert S. and Ronald R. Kneebone

1993 Craft Specialization, Refuse Disposal, and the Creation of Spatial Archaeological Records in Prehispanic Mesoamerica. In *Prehispanic Domestic Units in Western Mesoamerica: Studies of the Household, Compound, and Residence*, edited by R. S. Santley and K. G. Hirth, pp. 37-63. CRC Press, Boca Raton.

Service, Elman R.

1971 *Primitive Social Organization: An Evolutionary Perspective*. Random House, New York.

1975 *Origins of the State and Civilization : The Process of Cultural Evolution*. Norton, New York.

Shafer, Harry J. and Thomas R. Hester

1991 Lithic Craft Specialization and Product Distribution at the Maya Site of Colha, Belize. *World Archaeology* 23(1):79-97.

Sheets, Payson D., Harriet F. Beaubien, Marilyn Beaudry, Andrea Gerstle, Brian McKee, C. Dan Miller, Hartmut Spetzler and David B. Tucker

2008 Household Archaeology at Ceren, El Salvador. *Ancient Mesoamerica* 1(1):81-90.

Shennan, Stephen

1982 Exchange and Ranking: The Role of Amber in the Earlier Age of Europe. In *Ranking, Resource and Exchange: Aspects of the Archaeology of Early European Society*, edited by C. Renfrew and S. Shennan, pp. 33-45. Cambridge University Press, Cambridge.

Siegel, Peter E.

1985 Functional Variability within an Assemblage of Endscrapers. *Lithic Technology* 13(2):35-51.

Sinopoli, Carla M.

1988 The Organization of Craft Production at Vijayanagara, South India. *American Anthropologist* 90(3):580-597.

1991 *Approaches to Archaeological Ceramics*. Plenum Press, New York.

1999 Levels of Complexity: Ceramic Variability at Vijayanagara. In *Pottery and People: A Dynamic Interaction*, edited by J. M. Skibo and G. M. Feinman, pp. 115-136. University of Utah Press, Salt Lake City.

Skibo, James M.

1992 *Pottery Function: A Use-alteration Perspective*. Plenum Press, New York.

1999 Pottery and People. In *Pottery and People: A Dynamic Interaction*, edited by J. M. Skibo and G. M. Feinman, pp. 1-8. University of Utah Press, Salt Lake City.

Smith, Michael E.

1987 Household Possessions and Wealth in Agrarian States: Implications for Archaeology. *Archaeology* 6(4):297-335.

1993 Houses and the Settlement Hierarchy in Late Postclassic Morelos. A Comparison of Archaeology and Ethnohistory. In *Prehispanic Domestic Units in Western Mesoamerica: Studies of the Household, Compound, and Residence*, edited by R. S. Santley and K. G. Hirth, pp. 191-206. CRC Press, Boca Raton.

2004 The Archaeology of Ancient State Economics. *Annual Review of Anthropology* 33:73-102.

Sotomayor, María L. and María V. Uribe

1987 *Estatuaria del Macizo Colombiano*. Instituto Colombiano de Antropología, Bogotá.

Spielmann, Katherine A.

2002 Feasting, Craft Specialization, and the Ritual Mode of Production in Small-scale Societies. *American Anthropologist* 104(1):195-207.

2008 Crafting the Sacred: Ritual Places and Paraphernalia in Small-scale Societies. *Research in Economic Anthropology* 27:37-72.

Stanish, Charles

2004 The Evolution of Chiefdoms. An Economic Anthropological Model. In *Archaeological Perspectives on Political Economies*, edited by G. M. Feinman and L. M. Nicholas, pp. 7-24. University of Utah Press, Salt Lake City.

Stark, Barbara L.

1999 Finely Crafted Ceramics and Distant Lands: Classic Mixtequilla. In *Pottery and People: A Dynamic Interaction*, edited by J. M. Skibo and G. M. Feinman, pp. 137-156. University of Utah Press, Salt Lake City.

Stark, Miriam T.

1994 Pottery Exchange and the Regional System: A Dalupa Case Study. In *Kalinga Ethnoarchaeology: Expanding Archaeological Method and Theory*, edited by W. A. Longacre and J. M. Skibo, pp. 169-197. Smithsonian Institution Press, Washington, D.C.

Stein, Gil

1996 Producers, Patrons, and Prestige: Craft Specialists and Emergent Elites in Mesopotamia from 5500-3100 BC. In *Craft Specialization and Social Evolution: In Memory of V. Gordon Childe*, edited by B. Wailes, pp. 25-38. University Museum of Archaeology and Anthropology, University of Pennsylvania Philadelphia.

Stein, Gil and James Blackman

1993 The Organizational Context of Specialized Craft Production in Early Mesopotamian States. *Research in Economic Anthropology* 14:29-59.

Steponaitis, Vincas P.

1991 Contrasting Patterns of Mississippian Development. In *Chieftdoms: Power, Economy, and Ideology*, edited by T. K. Earle, pp. 193-228. Cambridge University Press, Cambridge.

1992 Excavations at 1Tu50, an Early Mississippian Center near Moundville. *Southeastern Archaeology* 11(1):1-13.

Taft, Mary M.

1993 Part Two: Patterns of Ceramic Production and Distribution. Parte Segunda: Patrones de Producción y Distribución de la Cerámica. In *Prehispanic Chieftdoms in the Valle de la Plata, Volume 2: Ceramics-Chronology and Craft Production. Cacicazgos Prehispánicos del Valle de la Plata, Tomo 2: Cerámica-Cronología y Producción Artesanal* edited by R. D. Drennan, M. M. Taft and C. A. Uribe, pp. 105-185. University of Pittsburgh Memoirs in Latin American Archaeology, No. 5. University of Pittsburgh, Universidad de los Andes, Pittsburgh, Bogotá.

Trigger, Bruce G.

1983 *Ancient Egypt: A Social History*. Cambridge University Press, New York.

1985 Generalized Coercion and Inequality: The Basis of State Power in Early Civilizations. In *Development and Decline: The Evolution of Sociopolitical Organization*, edited by H. J. M. Claessen, P. v. d. Velde and M. E. Smith, pp. 46-61. Bergin and Garvey Publishers, Inc., South Hadley.

1990 Monumental Architecture: A Thermodynamic Explanation of Symbolic Behaviour. *World Archaeology* 22(2):119-132.

1993 *Early Civilizations: Ancient Egypt in Context*. American University in Cairo Press, Cairo.

2003 *Understanding Early Civilizations: A Comparative Study*. Cambridge University Press, Cambridge; New York.

Trigger, Bruce G. and B. J. Kemp

1983 *Ancient Egypt: A Social History*. Cambridge University Press, Cambridge.

Trostel, Brian

1994 Household Pots and Possessions: An Ethnoarchaeological Study of Material Goods and Wealth. In *Kalinga Ethnoarchaeology: Expanding Archaeological Method and Theory*, edited by W. A. Longacre and J. M. Skibo, pp. 209-224. Smithsonian Institution Press, Washington, D.C.

Underhill, Anne P.

2002 *Craft Production and Social Change in Northern China*. Kluwer Academic / Plenum Publishers, New York.

Van der Leeuw, Sander E.

1977 Towards a Study of the Economics of Pottery Making. In *Ex Horreo 4*, edited by B. L. van Beek, R. W. Brandt and W. Groenman-van Waateringe, pp. 68-76. IPP, Amsterdam.

Vasco, Luis G.

1987 *Semejantes a los Dioses. Cerámica y Cestería Embera-Chamí*. Universidad Nacional de Colombia, Bogotá.

Vaughan, Patrick C.

1985 *Use-wear Analysis of Flaked Stone Tools*. University of Arizona Press, Tucson.

Vaughn, Kevin J.

2006 Craft Production, Exchange, and Political Power in the Pre-Incaic Andes. *Journal*

of Archaeological Research 14(4):313-344.

Velandia, Cesar A.

1994 *San Agustín: Arte, Estructura, y Arqueología*. Fondo de Promoción de la Cultura del Banco Popular, Bogotá.

Welch, Paul D.

1991 *Moundville's Economy*. University of Alabama Press, Tuscaloosa.

1996 Control over Goods and the Political Stability of the Moundville Chiefdom. In *Structure and Change in the Prehistoric Southeastern United States*, edited by J. F. Scarry, pp. 69-91. University of Florida, Gainesville.

Welch, Paul D. and C. Margaret Scarry

1995 Status-related Variation in Foodways in the Moundville Chiefdom. *American Antiquity* 60(3):397-419.

Wesson, C. B.

1999 Chiefly Power and Food Storage in Southeastern North America. *World Archaeology* 31(1):145-164.

Whalen, Michael E.

1981 *Excavations at Santo Domingo Tomaltepec: Evolution of a Formative Community in the Valley of Oaxaca, Mexico*. Prehistory and Human Ecology of the Valley of Oaxaca. University of Michigan Museum of Anthropology, Memoir No. 12, Ann Arbor.

1988 House and Household in Formative Oaxaca. In *Household and Community in the Mesoamerican Past*, edited by R. R. Wilk and W. Ashmore, pp. 249-272. University of New Mexico Press, Albuquerque.

White, Joyce C.

1995 Incorporating Heterarchy into Theory on Socio-Political Development: The Case from South-east Asia. In *Heterarchy and the Analysis of Complex Societies*, edited by R. M. Ehrenreich, C. L. Crumley and J. E. Levy, pp. 101-123. Archeological Papers of the American Anthropological Association, No. 6.

Wilson, Gregory D.

2001 Crafting Control and the Control of Crafts. Rethinking the Moundville Greenstone Industry. *Southeastern Archaeology* 20(2):118-128.

2008 *The Archaeology of Everyday Life at Early Moundville*. University of Alabama Press, Tuscaloosa.

Winter, Marcus C.

1976 The Archaeological Household Cluster in the Valley of Oaxaca. In *The Early Mesoamerican Village*, edited by K. V. Flannery, pp. 25-31. Academic Press, New York.

Wright, Katherine I.

1994 Ground-stone Tools and Hunter-gatherer Subsistence in Southwest Asia: Implications for the Transition to Farming. *American Antiquity* 59(2):238-263.

Yerkes, Richard W.

1983 Microwear, Microdrills, and Mississippian Craft Specialization. *American Antiquity* 48(3):499-518.

1989 Mississippian Craft Specialization on the American Bottom. *Southeastern Archaeology* 8(2):93-106.

Yohe, Robert M. II., Margaret E. Newman and Joan S. Schneider

1991 Immunological Identification of Small-mammal Proteins on Aboriginal Milling Equipment. *American Antiquity* 56(4):659-666.